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SECTION OF SURGERY.

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DISCUSSION ON ACUTE OSTEOMYELITIS.

OPENING PAPER

BY

JOHN FRASER, M.D., F.R.C.S.EDIN.,
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THE subject of osteomyelitis is a large one, and I have been somewhat at a loss to know how best to present the various aspects of the problem. I may review the literature presented up to date, stating the views of others and recounting their results, or I may relate personal experiences and beliefs. I have decided to choose the latter course. In a paper of this description, short as it must necessarily be, it is impossible completely to survey the published works of others, and if a review cannot be complete it is better left unsaid. But a stronger influence has been the desire that one's personal views should meet with criticism and analysis. There is an old Scots saying that "Every craw thinks its ain bairn the blackest," and the belief is by no means confined to the order of Passeres. We suffer from it as badly as do the crows, but, as the hot breath of scorn winnows the chaff from the wheat, if you will refine my errors and correct my mistakes I shall value your honest criticism.

First let me present the understanding which we have of the place nomenclature of the average bone, for the terms are alluded to in the subsequent text. We recognize the shaft of the bone or the *diaphysis*; at one or both extremities the *epiphysis* is distinctive as long as there is growth in length, and it is separated from the related diaphysis by the plate of the *epiphyseal cartilage*. That portion of the diaphysis which is adjacent to the epiphyseal cartilage has such distinctive and important characteristics that it is worthy of a special name, and, since the researches of Lexer, it has been termed the *metaphysis*. Diaphysis, epiphysis, epiphyseal cartilage, and metaphysis are therefore the place names to which allusion will constantly be made, and of the four the metaphysis is pre-eminently the most important as far as the pathology of inflammation is concerned.

The reasons for its importance are apparent. Existing as it does between the epiphyseal cartilage and the diaphysis, it is the site during the years of growth of the most intense cell activity, and as a natural corollary it is the most vascular area of the bone. Three out of four of the independent sources of blood supply to the growing bone open by direct routes into the zone of the metaphysis, and the blood stream of the fourth source is indirectly related to it. There is, I believe, a consensus of agreement that the metaphysis is the site of origin of most of the inflammatory diseases of bone and of acute osteomyelitis in common with others.

THE ORIGIN OF THE DISEASE.

In its beginnings the disease is essentially an infective process of the interior of the bone; the endosteum and the marrow are the sites of the disorder, and if we are to be etymologically correct *endosteomyelitis* is the proper and descriptive nomenclature. A primary periostitis is the rarest possible event; it may occur as the result of a spread by contiguity from a neighbouring focus in the maxillae and the ribs, but where primary bone infections are concerned it is invariably secondary to a medullary infection. It is perhaps unnecessary to have alluded to this point, for any error which may have existed has probably been dissipated long ago, but in the operative treatment of osteomyelitis the tragedy of incomplete interference is traceable to an erroneous conception of the sequence of events.

Acute osteomyelitis is the result of an acute pyogenic infection localized in its early stages to the metaphysis of the bone; it is a disease of youth, an affection of the age of growth. An inquirer will naturally follow this statement by three questions:

(1) How does the infecting organism gain entrance to the metaphysis?

(2) What are the influences which localize the infection to a certain locality?

(3) What are the organisms responsible for the disease?

1. *The Route of Infection.*

The vast majority of the cases are examples of a blood-borne infection. This statement is one which we believe to have been established beyond any question of doubt; there is the most convincing clinical evidence, and the sequence of events has been reproduced experimentally by the researches of Schüller, Krause, Müller, and particularly by Salvia. In a few exceptional cases the infection enters the bone from a neighbouring focus of inflammatory disease, and examples of this occurrence are met with in the instances of osteomyelitis which follow infection of neighbouring joints. In this event the spread is by the perivascular lymphatics, in a few cases possibly by direct spread, and the epiphysis is more liable to the infection than the metaphysis.

Believing, therefore, that acute osteomyelitis is a blood-borne disease, we must assume that a pre-existing blood infection exists. The septicaemia (for it is none else) is of a peculiarly mild type, for it is correct to say that in the case history of the average osteomyelitis it is unusual to find evidence of a pre-existing blood infection. If we are to accredit the recently published work of Lipschitz we must recast our conception of the incidence of blood infection in children, for, according to this author, the occurrence is the rule rather than the exception. I confess I have been impressed by the thesis which he has produced, and I believe that we must give the possibility of the event a fuller consideration than it has been accorded in the past. There is something reasonable in the view that in the early years of life, before any degree of artificial immunity has been acquired, and while the child has to rely on the extent of its natural immunity, contact with even the minor infections may result in a blood infection. The event has an obvious bearing on the development of osteomyelitis.

What are the sources from which the infection comes? The septic tooth, the infected tonsil, inflammation of the sinuses, furunculosis of the skin are well recognized points of entrance; pneumonia and the exanthemata are less frequently responsible. But there is another source the importance of which I am convinced is not yet appreciated in surgical work—I allude to umbilical sepsis. I have recently collected the records of some thirty cases of umbilical sepsis in newborn babies complicated by a pyaemic process and metastatic foci of osteomyelitis. The collection is derived from the observations of the last four years; the cases have been the most serious examples of the disease—a fatal result would appear to be almost inevitable—and, though this may be the most serious aspect of the question, I have a suspicion that in a considerable number of cases umbilical sepsis is the medium through which a blood infection is induced. You may be inclined to question the possibility of a blood infection incurred at birth existing until the years of later childhood, but I know of no evidence which would discredit it. This question of umbilical sepsis is of considerable practical importance. I make no claim to any knowledge of obstetrics, but, from inquiries which I have instituted, I am informed that this highly absorptive area of the divided umbilical cord, in close proximity to, and in direct communication with, vital abdominal organs, is often treated with indifference to either aseptic or antiseptic measures. I put umbilical sepsis as a very potent factor in the production of the blood infection of infants, and therefore I look upon it as closely related to the development of osteomyelitis at a later age.

2. *The Influences which Localize the Infection.*

The evidence of large numbers of statistics has shown that certain localities of the osseous system are particularly liable to be affected by the disease. Our experience has been that the upper end of the tibia, the lower end of the femur, the lower end of the tibia, and the upper end of the humerus are the common sites, occurring in the order stated. Influences must exist which control this distribution, and, though the matter may only be of academic importance, it is of interest to surmise what these influences are.

Trauma is the first to suggest itself, and it is generally accepted as an influence of great importance. The experiments of Pietrikowski support it from an experimental point of view. It explains the high proportion of incidence in boys, the frequency with which the lower limbs are affected, and particularly those situations which are most exposed to injury. The trauma is slight in degree, and the influence which it exerts results in the production of a small metaphyseal haemorrhage, which, though minor in extent, is sufficient to arrest the circulating organism and so localize the disease.

The surface extent of the metaphysis is the second influence. The larger the extent of the metaphyseal surface the greater must be the proportion of the blood supply, and the more intense the cellular activity of the region—two factors which, in combination with others, predispose to the development of inflammatory disease. Kellogg Speed has discussed the influence of the nutrient vessels upon the localization of the disease. The direction of the nutrient vessels from the knee and towards the elbow is a stable anatomical condition, and it was long ago suggested that the disease tended to be most common at the bone extremity towards which the nutrient artery was directed. If our statistics are to be trusted, the very reverse is the case, for the osseous relations around the knee are the sites of election.

Mathers has suggested that, where an individual bone is concerned, the epiphysis which is latest in uniting indicates the locality which the disease is most liable to affect, and in this way he explains the frequency with which the bones around the knee are involved.

I am doubtful, however, whether the direction of the nutrient vessels or the time influence of the epiphyseal cartilage has any bearing upon the locality of the disease. The devitalizing effects of cold and trauma, and the predisposing influences of the surface extent of the metaphysis, are the factors of which we have any real knowledge.

3. *The Organisms Responsible for the Disease.*

This aspect of the question may be dismissed in a few words. I have analysed the results of the bacteriological examination in 400 cases to which I have had access, and the statistics are as follows:

Organisms present.	Percentage.
Staphylococcus aureus	78
Staphylococcus albus	2
Streptococcus pyogenes	6
Pneumococcus	14
B. coli communis	1 case
B. typhosus	3 cases

The proportion of incidence of the individual infections is very similar to that recorded in various statistical collections. The percentage of pneumococcal infection may be considered unusually high, but this group has been very carefully controlled, and, as will presently be shown, we attach considerable importance to this class of the disease.

Influence of Age and Sex.

The disease is more common in boys than in girls in a proportion of six to one. We have plotted out the age incidence, and we have found a reading similar to that recorded by so many others, that a period from the eighth to the twelfth year is that in which the disease most frequently occurs. These are subsidiary facts in the etiological picture which indicate the influence of trauma in the occurrence of the disease.

The Pathology of the Disease.

It is not my intention to reiterate the well recognized general facts of the pathology of the disease; these paths have been well trodden. I would rather present one or two special aspects of the picture.

I have already indicated the belief that where osteomyelitis of the long bones is concerned the vast majority of the cases begin as a metaphysitis. Diaphysitis is secondary to a metaphysitis, and I have yet to see the case of acute osteomyelitis which began in the centre of the diaphysis.

It is sometimes stated that the epiphysis may be the primary site of the disease as far as the bone is concerned. This is true, but in actual fact the epiphysitis is invariably secondary to pre-existing infection of its related joint. It is apparent that these points are of great practical importance where operative interference is concerned.

I find it helpful to correlate the pathology of the disease with its clinical features. There is the primary intense infection of the medulla; inflammatory products and exudates are under extreme tension, and because of this dynamic feature local symptoms are intense and absorption of toxins or organisms most manifest. It is the primary stage of acute osteomyelitis, and from a prognostic point of view the most dangerous stage, because it is that in which septicaemia is most likely to occur. It is impossible to detail in a paper of this description the various stages in the progress of the endosteomyelitis, but I would recall the interesting observation of the late Sir William Macewen that within a few hours of the onset of an acute medullary infection the osteoblasts of the interior have migrated *en masse* to the deeper layers of the periosteum—a striking demonstration of the antichemiotactic response on the part of that highly specialized and most sensitive cell. Pus formation in the medulla of the bone is the natural sequence of this primary and central phase of the disease.

The second stage is evidenced by a spread of the infection from the interior into the subperiosteal area. The vessels and spaces of the Haversian canals are the routes along which the migration occurs, and a serous subperiosteal effusion is the precursor of a purulent one. Relief of tension is the characteristic of the second stage; the urgency of the symptoms abates and the prognosis improves, because the risks of a massive invasion of the blood stream are now lessened. The earlier the second stage appears in the progress of the case the better is the prognosis, and the most fatal examples of the disease are those in which the second stage has failed to develop.

Because the existence of the Haversian canal is the factor upon which the appearance of the second stage depends, it would seem that the proportion of these canals in different bones may have an influence upon the progress of the disease. I find that fifty years ago August Schiller, in a thesis which he presented to the University of Freiburg, estimated for physiological reasons the relative number of Haversian canals in different bones. He found that of the various long bones the femur is the one in which the proportion of Haversian canals is least; as estimated by the number of Haversian canals the humerus and the tibia are three times more porous than the femur. We have nothing to do with the physiological problem which Schiller discussed, but from our point of view the work has this interesting application—that the more porous the bone the earlier is the appearance of the second stage of pathology and the better is the prognosis.

We associate the third stage of pathology with the phenomenon of reaction. Relief has been achieved through the medium of operation or by a spontaneous rupture of the infection through the periosteum and the overlying soft tissues. Congestion has activated the osteoblasts in the deeper layers of the periosteum, and Macewen has shown how their numbers are reinforced at the commencement of the disease. The result of this activity is seen in the involucrum which now begins to be deposited around the periphery of the original shaft. It is unnecessary to detail the further phases of this stage—the persistence of medullary infection and its relief through the cloacae of the involucrum; the appearance of granulation tissue in the

interior of the bone; its active phagocytic influence upon the necrotic bone, so that the latter is either entirely removed or is separated from the living tissue as a sequestrum; and a final stage, when a new shaft is remodelled and the involucrum removed through the medium of the osteoclast.

As I am anxious to speak of the treatment of the disease, and as my remarks have already occupied more space than is permitted to me, I shall dismiss the various aspects of clinical features, diagnosis, and prognosis in a few words.

Clinical Features.

The clinical features are intense and distinctive. There is the agonizing pain of the early stage while the infection is still locked up under tension in the interior of the bone. It is during this stage that the signs of toxaemia—the high temperature, the delirium, the poisoned appearance—are greatest. It is at this stage that a massive invasion of the blood stream may inaugurate a septicaemia which by its intensity overshadows the local signs.

With the relief of tension which characterizes the stage of subperiosteal effusion there is an immediate abatement of signs and symptoms—the pain diminishes, the temperature falls, the general appearance improves. There is an element of danger in this stage because the sudden relief in symptoms may raise doubts as to the veracity of the diagnosis. Thereafter, in the absence of relief treatment, the signs and symptoms are re-established as the tension again rises, and the features are those of local septic infection.

Diagnosis.

The diagnosis is usually established without much difficulty. The intensity of the local symptoms and the evidence of an unusual degree of toxic absorption are the characteristic features of the disease. Local difficulties arise under certain peculiarities of position and depth from the surface. For example, acute osteomyelitis of the ilium may simulate either acute abdominal disease or acute infection of the hip-joint, because of its proximity to these two regions. Osteomyelitis of the femur may be difficult to recognize because of the depth at which the bone lies from the surface.

As far as the differential diagnosis is concerned, acute rheumatism and cellulitis are the conditions in which mistakes may arise. The confusion of osteomyelitis with acute rheumatism should not occur, because the distinctions between the two conditions are perfectly well defined; in the event of difficulty arising a blood count may be of value, because the white cell count is so much higher in osteomyelitis than in rheumatism. The possibility of confusion with cellulitis appears when the soft tissue infection overlies a bone; the intense degree of general illness in osteomyelitis is then a distinguishing feature of great value.

Prognosis.

The prognosis may be said to be controlled by one or two special features. The general rule may be formulated that the more distal the focus of infection the more favourable is the prognosis. The infection of bones which lie in proximity to vital organs (as, for example, the skull bones and the pelvis) is necessarily a serious development. The more porous the bone and the earlier the appearance of the subperiosteal effusion, the more favourable is the outlook. The real danger lies in the septicaemia which may develop during the first stage of the disease.

Our experience is that age has comparatively little influence upon the prognosis unless it be that the younger the child the greater is the tendency to septicaemia.

The Treatment of Osteomyelitis.

It is both natural and convenient that our considerations of treatment should fall into two groups—local and general.

Local Treatment.

I wish to introduce this portion of the discussion with a question which may appear somewhat heterodox. The question is as follows: Is there any variety or type of acute osteomyelitis in which immediate operation is inadvisable? We are in universal agreement regarding the necessity for surgical operation in the great majority of cases; in general we concur with Warhasse when he wrote: "Without surgery osteomyelitis is a serious disease even in its mildest form, and with surgery it is hopeful in its worst stages," but are we to accept the universality of surgical interference? I think not. I confess I make the reservation with some hesitation, but I believe in its importance. The pathologist recognizes a serous or albuminous type of osteomyelitis. From observations which we have made we believe that the bacteriology of this type is almost invariably pneumococcal, and our clinical experience has been that a considerable proportion of these cases subside without operative interference. In fact, I go so far as to say that in this class of case operation in the early stages is actually harmful, for it may result in dissemination of the disease, and it certainly is followed by soft tissue suppuration and sequestrum formation.

Certain peculiarities indicate this special variety of case. It affects babies and young children, the temperature is rarely as high as in the ordinary suppurative osteomyelitis, the evidences of toxaemia are slight in degree, and the joint which is associated with the affected bone is usually the site of a serous effusion. Under these conditions we suspect that the infection is of the serous and pneumococcal type; a blood count is therefore taken, and it demonstrates a degree of leucocytosis which is very much less than that which appears in the suppurative variety.

In this type of case we delay operation; extension is applied to the limb, fixation splints are employed, hot local applications are used, and the pain is relieved by the administration of chloral and bromide. In a considerable proportion of cases the temperature falls, the pain disappears, and the child regains his general health. Occasionally suppuration may ensue, but it is local in its extent; it presence is suspected if the temperature rises after a preliminary fall, if pain persists, or if local redness or oedema appears, and the development of the focus is followed by repeated *x*-ray examination. With the establishment of a definite focus of suppuration relief is obtained by a single trephine opening.

We have been repeatedly impressed by the value of the recognition of this special type of the disease.

The Local Treatment in the Ordinary Case.—The ordinary case permits of no delay, because it is by the relief of the medullary tension in the early stages of the disease that the infection is arrested, the risks of septicaemia reduced, and the extent of sequestrum formation minimized. The marrow cavity is exposed in such a way that efficient drainage is established, and in accomplishing this we follow a routine method. The affected segment of bone is exposed through an appropriate incision, and, recognizing that the metaphysis is the original site of the disease, the incision is planned so as to expose it. After separation of the periosteum the cortical bone overlying the affected metaphysis is perforated with a trephine or large burr, and from the opening so made a quantity of infected fluid escapes. A series of openings is made along the line of the shaft at intervals of about three-quarters of an inch, and the openings are continued until red and apparently non-infected marrow is exposed. The series is now converted into a common opening by removing the intervening segments of bone with a chisel. We make it a rule never to interfere with the underlying marrow. One often feels tempted to curette it with a sharp spoon, but I am convinced that this is a mistake, for it disseminates the infection and increases the degree of necrosis in the cortex of the bone. We have found that treatment of the infected marrow by the Carrel-Dakin method is a most excellent procedure. The wound is left open throughout its length, a number of perforated capillary tubes are passed into the interior of the infected medullary cavity, and through these an intermittent irrigation with eusol or Carrel-Dakin solution is arranged. At the end of a variable period (usually about three weeks) the disinfection of the interior is such that partial closure of the wound by secondary suture can be attempted. We have occasionally applied the method of microbic count in estimating the time at which

secondary suture can be carried out, but I cannot say that we have found the method of any real value.

The Method of Resection of the Affected Bone.—From a theoretical point of view there is something attractive about the idea that one should subperiosteally resect in its entirety the affected segment of bone. It would seem that one might thereby remove at any rate the bulk of the infection, and that, as there would be comparatively little opportunity for necrosis to occur, the period of the illness would be materially shortened. The idea has been put in active practice, and it is the method which some surgeons at present employ. We have tried the resection operation, but we have abandoned it. In our hands at least it presented serious disadvantages. We found that the local infection was not materially affected; in fact, in several cases we had evidence that it was actually disseminated, that the epiphysis became infected, and that the cut end of the bone was attacked by the disease. In one or two cases we believed that a general blood infection was induced by the manœuvre, and in more than one instance we had the unpleasant experience of finding that the regeneration of subperiosteal bone, upon which the success of the method essentially depends, failed to develop. We have therefore abandoned the method except under one condition—when there has been such an extensive infection, both subperiosteally and in the medulla, that the complete diaphysis is a sequestrum. In this event we practise the operation of diaphysectomy, because the bone is already necrotic from epiphysis to epiphysis.

The Treatment of the General Condition.

This is a most important division of the treatment, and I have the feeling that in the past we have given it less attention than it deserves. The child who develops osteomyelitis must have been to some extent the subject of a septicaemia, and subsequent to the local infection a further degree of blood infection inevitably occurs. Therefore in every case of osteomyelitis consideration must be given to the treatment of the general infection. The lines which we follow in attempting to counteract the septicaemia may be grouped under the headings of vaccines, serums, special drugs, blood transfusion, and leucogenic stimulants.

Vaccines.—It is a rule in our practice that as soon as a case of osteomyelitis of the ordinary staphylococcal type comes under observation vaccine treatment is begun. Until an autogenous vaccine is available, which will be in four or five days, a stock staphylococcal vaccine is used. An initial dose of 200 million is given, on the third day a dose of 400 million is used, and this is repeated on the fifth day; thereafter the autogenous vaccine is brought into use, and it is given every fourth or fifth day. As far as possible an attempt is made to arrange that the vaccine is given at the lowest points of the pulse and temperature curves. The only exception which we recognize to this routine of vaccine treatment is the intensely acute septicaemic variety of the disease; in this class of case remedies which give a more immediate response are required.

Serums.—In the especially acute septicaemic type of case and in the case which has not responded to vaccine treatment we recommend and employ serum therapy. After a preliminary sensitization test we administer large doses of either a stock serum, a specially immunized serum, or, if neither of these is available, the ordinary horse serum. The drug is given daily in increasing doses, beginning with 10 c.cm. and reaching 100 c.cm.

Blood Transfusion.—The conditions which call for serum treatment we consider equally suitable for blood transfusion, and in young children particularly we favour this method. The value of blood transfusion in this connexion is enhanced if it is modified by the combination of exsanguination with the transfusion. The most striking demonstration of the value of the method is seen in those cases of osteomyelitic septicaemia which persist in spite of the ordinary lines of treatment.

Special Drugs.—You are probably aware of the recent experimental work which has shown the specific antibacterial influence of certain metals, particularly tin and manganese, upon the staphylococcal group. It is becoming a routine measure to employ these drugs, chiefly in their colloidal forms, in the treatment of acute osteomyelitis. We have accepted the routine in our work.

Leucogenic Stimulants.—I believe it was Professor Foucault who first advised the use of yeast and nucleic acid in osteomyelitis, because of the stimulating effect which these substances possess upon the white cell count. We have not employed this method of treatment, and therefore I can pass no comment upon it, but, in view of the seriousness of the septicaemic picture in osteomyelitis, it would seem to be worthy of a trial.

I would like to have said something of the local considerations of acute osteomyelitis, as shown in the iliac bone, the trigone of the femur, and the skull, but already I have overstepped by a large measure the amount of time and space which has been allotted to me; perhaps others will deal with these most interesting aspects of the problem.

GENERAL DISCUSSION.

Mr. B. C. MAYBURY (London) congratulated Mr. Fraser on his opening paper: he had covered a wide field and had put many new ideas before them. Mr. Fraser had referred to acute osteomyelitis as a septicaemia, and Mr. Maybury dealt with this aspect of the disease—namely, acute osteomyelitis considered as a general systemic infection with local bone lesions.

In the very early stage of acute osteomyelitis it was not uncommon to find very transient local pain and tenderness in several of the bones. As a rule the pain and tenderness rapidly disappeared from all except the one bone which was affected with osteomyelitis. Cases which exhibited these features were most likely to be mistaken for cases of acute rheumatism. Fraenkel had pointed out many years ago that micro-organisms, either those which caused the primary disease or those which were responsible for a secondary infection, were frequently found in the marrow of the vertebrae, and less commonly of the ribs, of patients who had died from diseases such as erysipelas, pneumonia, diphtheria, general peritonitis, scarlet fever, etc. He had also indicated that the definite histological changes in the marrow showed that the entry of the organisms must have occurred during life and not *post mortem*. Inasmuch as the organisms in acute osteomyelitis must be conveyed to the bone by the blood stream from some primary focus such as a patch of impetigo, a septic cut, a carious tooth, or an infected tonsil, etc., it was a fair assumption that these early transient pains were due to a blood-borne infection of the bone marrow in many parts of the body, but that, before suppuration could occur, the infection was overcome by the patient's natural powers of resistance. If the infection in any given bone or bones was too severe, or if the patient's general or local resistance was too weak, the latter being often lowered by some apparently trivial trauma, then an acute osteomyelitis occurred. This afforded an explanation of those comparatively uncommon cases of multiple osteomyelitis in which two or more bones or ends of bones were affected simultaneously with the disease.

A generalized blood infection was thus an essential part of acute osteomyelitis, and the severity of the former bore a relationship to that of the latter. In very mild cases the clinical manifestations of the local bone lesion were slight, while those of the general infection were frequently overlooked or diagnosed as growing pains, influenza, etc. In very severe cases often the patient died from the general infection before the local bone lesion manifested itself clinically. While the common conception was undoubtedly true in certain instances that pyaemia was secondary to the osteomyelitis, it was much more probable that the osteomyelitis was simply a local "fixation abscess" occurring in the course of a general septicaemia or pyaemia. Thus, however early local operative treatment was undertaken in a fulminating case, it could have little effect on the course of the general systemic infection, and the mortality, therefore, always remained high.

To explain the occurrence of subacute, chronic, or

recurring osteomyelitis in which constitutional symptoms were absent or slight was not difficult. They knew that organisms might remain dormant in the tissues for a very long time, and it was probable that an attack of osteomyelitis of a subacute or chronic type was due to the awakening into activity of bacteria that had remained for months or years in a quiet state in the marrow, to which they had been conveyed by the blood stream at some previous date during the course of some undiagnosed febrile attack. The best example of this was the typhoid bone abscess. It was possible that the lodgement of bacteria in the marrow was of much more frequent occurrence than was supposed, and that it was only when the body failed to deal with the infection that osteomyelitis occurred.

A sign which might be of considerable value in the diagnosis of the disease was the delay in appreciation by the patient of tenderness produced by pressure on the shaft of the affected bone. If firm, steady pressure was applied to a part of the shaft which was free from swelling and remote from the spot of greatest tenderness, the patient would cry out with pain, but only after the lapse of an appreciable interval of time.

The local treatment of a typical case of acute osteomyelitis was undoubtedly operation. But in many of the sometimes undiagnosed mild cases, in which there was little local pain and only slight fever, operative treatment was not necessary. Acute pyogenic infection of any tissue in the body might be suppurative or non-suppurative; the dividing line was not clearly defined, and depended upon the presence or absence of pus visible to the naked eye. For the former condition they operated, the latter they watched, and frequently the process subsided. A patient whose general condition was good, whose temperature was 99° to 100°, and who had some pain and a local tender spot, might be considered to have a mild infection. Such a patient should be treated by rest and heat applied locally. Frequently in twenty-four or forty-eight hours the symptoms would abate; the indications for operation were increase of, or persisting, pain and fever. Sometimes after amelioration of the symptoms recrudescence took place from time to time and pointed to the existence of a local bone abscess.

To summarize, acute osteomyelitis was a disease in which there was a general systemic infection with a local manifestation in one or more of the bones; it was comparable to pneumonia in which the lung was, as a rule, the site of the local lesion. It was capable of undergoing spontaneous abortion or cure. For a severe infection, operation on the local lesion was urgently called for, but the treatment of the general septicaemia must not be ignored; for a mild infection expectant treatment should be adopted.

[Slides were shown of skiagrams of a humerus from a case of multiple osteomyelitis which demonstrated the formation of a Brodie's abscess from its earliest stage. The case, which illustrated certain of the above-mentioned points, was that of a boy aged 15, who was admitted to hospital with a six days' history of acute osteomyelitis of the twelfth dorsal vertebra and upper part of the femur; he was also suffering from furunculosis. Symptoms of disease in the humerus appeared ten days after the onset of the illness. All three foci were treated expectantly, and all the symptoms subsided without operative treatment. At the present time, eight months later, the boy is quite well. He has had no recurrence of symptoms referable to the vertebral focus, but has had two attacks of pain in the femur, with slight fever lasting a few days, and occasional pain in the humerus. The skiagram of the femur showed a moderate degree of periosteal thickening and that of the humerus a central bone abscess.]

Mr. Acton Davis (London) said that his main point of disagreement was on the subject of operation, since he was strongly in favour of subperiosteal resection of the shaft. He had collected a series of cases operated on at St. Bartholomew's Hospital during the years 1909-13 inclusive and 1921-22-23. A total of 45 cases was operated on by gutter, the mortality being 17. In the cripple schools in London there were 77 cases of osteomyelitis, 15 amputations, and 13 with open sinuses. The results of diaphysectomy were better. In 7 cases of his own the mortality was 1; in 7 cases at St. Bartholomew's Hospital the mortality was also 1. [Some charts were shown indicating the fall of pulse and temperature, and a series of skiagrams illustrating the regeneration of bone.] He preferred diaphysectomy because of its rapidity, completeness, and absence of subsequent excavation of the bone. The main objection was failure of alignment, but if immediate attention was paid to extension that should be avoided.

Mr. A. Mitchell (Aberdeen) was glad that Mr. Fraser had drawn attention to two elementary but important points—namely, that the disease always began at the end of the diaphysis, and that a simple periosteal abscess was practically never met with. He wished to confine his remarks to the question of treatment. From what he had seen of the work of others, and from his own cases, the results of the type of operation advocated by Mr. Fraser had not, in many cases, impressed him very favourably, and had led him to employ the method of subperiosteal resection to a much greater extent than he thought Mr. Fraser did. He was well aware that this method had many critics, but he ventured to think that some of its bad results had been due to too much being expected from it in bad cases, and to insufficient attention to the details of after-treatment in suitable cases. It had to be admitted that simple drainage, by removal of a piece of bone cortex, had often resulted in apparently insufficient removal of infection; fresh necrosis with repeated removal of sequestra followed, with persistent infection of the soft tissues, and fixation of joints or severe secondary haemorrhage might take place. In some cases amputation might have to be resorted to after many weeks of suffering on the part of the patient. By subperiosteal resection of the whole thickness of the affected bone one did much to avoid these sequelae and to ensure an easier convalescence. He had seen only one case in a child in which absolutely no regeneration took place; the periosteum had evidently been completely destroyed. This case would almost surely have resulted in amputation if treated by conservative methods, but by resection and subsequent grafting a fairly good leg was obtained. Mr. Fraser had said that subperiosteal resection might be followed by increased signs of septicaemia and by death, and so might limited removal of bone; there were some cases in which the patient's condition was so grave that no local treatment could possibly help him. While he advocated resection in certain cases, neither he nor any advocate of resection, so far as he knew, had suggested it as a universal treatment. It was a little difficult to put on paper a description of the case suited for resection, but he thought the cases seen in practice might be divided into three groups:

1. Manifestly mild cases where the general condition was good, although the local condition had been present for an unusually long time; where the swelling was limited to the end of the bone, and was not spreading. Here drilling the bone was usually sufficient.

2. Certain cases seen very early, where, although the pulse and temperature were high, there was no swelling, but only very severe tenderness, strictly localized to one point. The periosteum was usually not much elevated, but was readily separable over a small area only. Local operation was satisfactory if done early.

3. Most cases of acute osteomyelitis sent to hospital had a history of a few days' illness. There was abundant sign of local infection, and pus was found under the periosteum, which was extensively separated. This was the commonest type, and in it he had found that resection gave the best results. The shaft of the bone was divided by a Gigli saw, and only that part where the periosteum was firmly adherent was left in place. Usually in the tibia one removed the whole shaft.

He thought by this plan that the infection was more likely to be cut short. The bone removed was not likely to play a very important part in regeneration. Its presence would not help the periosteum which had been separated

from it and had adherent to its under surface osteogenetic cells, which were ready to produce new bone. After removal of the bone the cavity was packed with gauze and the limb extended in a Thomas splint. In two or three days the pack was removed and suture of the periosteum and of the skin was performed, combined with the insertion of tubes for Carrel-Dakin treatment. The limb was kept in extension, but, at the same time, the patient was taught to perform voluntary contraction of the muscles at regular intervals; this was very important in stimulating the formation of new bone. Extension and voluntary movement were persisted in until firm bone had been formed. When the patient first began to walk a walking calliper splint was employed to prevent undue strain.

The after-treatment of these cases demanded a good deal of care, but the results were well worth it. It was often said that this method resulted in a great deal of shortening. He had found that this was, if anything, less than after incomplete operation. In support of this he might mention that he had recently seen a case which over six years ago had had resection of the lower half of one femur performed. At the same time a trephine operation was done on the lower end of the other, which was now over one inch shorter than the side on which the resection was done. As to general treatment, he had found both serums and vaccines helpful, but he had not yet seen any lasting good from blood transfusion in severe septic cases. His experience of this had not been extensive and had, perhaps, been unfortunate.

[Lantern slides and photographs were shown illustrating the various stages of regeneration of bone in children and the possibility of reconstruction by bone-grafting in adults.]

Mr. F. J. S. Heaney (Liverpool) had had within the previous two months examples of most of the varieties of osteomyelitis already mentioned, including one fatal case of staphylococcal osteomyelitis of the upper end of the humerus—a fulminating case with acute pleurisy which indicated a general infection. He had also had four cases of osteomyelitis which came after suffering for a week. In all of them the whole thickness of the tibia and a good part of its length were affected, and in all the indication for subperiosteal resection was clear. In these cases the patient had in the course of a week, and by his own vaccines, overcome the general infection, and the relief of the local condition was immediate: his experience was that the ultimate results were good. In one case—a Brodie's abscess with acute extension to the soft parts—he drained and trephined; when the shell of the humerus had become thick enough so that one side of it could bear the weight of the limb, then gathering and muscle-grafting were performed. Under his care at that moment was a case of multiple mild osteomyelitic lesion, which he hoped would clear up under treatment by an autogenous vaccine.

Professor G. E. Gask (London) congratulated Mr. Fraser on his paper. He agreed that the disease was the result of a generalized infection, the infecting organism entering by some lesion the nature of which varied considerably. He wished that the old nomenclature, so confusing to students, might express more clearly the pathology. As regards treatment, he said that he had never performed subperiosteal resection, and he concluded, after listening and studying the results, that the most important thing was the individual care of the surgeon.

Mr. C. Joll (London) did not feel satisfied that Mr. Fraser and Mr. Maybury had made out a case for non-operative treatment of certain mild cases (especially pneumococcal), but rather that such cases would do well with very limited operation. He pointed out that in the case treated by expectant methods referred to by Mr. Maybury the patient still had a chronic abscess of the humerus after eight months' illness, and that had operative treatment been carried out at an early stage the result could hardly have been less favourable. Mr. Joll also criticized Mr. Acton Davis's and Mr. Mitchell's operation of sequestrectomy on the ground that in the skiagrams shown the resection did not include that portion of the bone—namely, the metaphysis—which was generally admitted to be the site of the primary infective process.

Mr. Grey Turner (Newcastle-upon-Tyne) drew attention to the persistence of infection and its recrudescence often after many years in those cases of bone disease, and suggested that one of the important problems was the possible effect of the primary method of treatment on the ultimate after-history. It had been his misfortune to see some of the bad results of removal of the whole diaphysis, but he was greatly impressed by what had been said concerning it by the previous speakers, and especially by the cases so ably demonstrated by Mr. Mitchell. Shortening of the convalescence seemed to be one of the great points in its favour. He himself thought that there was a great deal in what Professor Gask had said concerning the individual attention given to this class of case, and he agreed that it was probable that just as good results would be secured by the older methods if as much attention were paid to all the details connected with their treatment as was devoted to the newer methods.

Mr. Ernest Finch (Sheffield) said that in the diagnosis of acute osteomyelitis in the early stages too much stress must not be laid on the *x*-ray findings. In these early stages, and it might be in the most acute stage, there was no change in the skiagrams of the bone. The consequence of this was that treatment of the bone condition was often delayed until some outstanding complication had developed. Treatment must be begun as soon as the clinical signs indicated that the bone was affected. The treatment by diaphysectomy was not any more successful than the gutter operation. In the latter operation it was rare to have to remove any sequestrum if the operation was thoroughly done. It might be that there were some small superficial flakes of bone exfoliated, but there was, as a general rule, no large mass of dead bone to be removed. In the adult, diaphysectomy might give rise to great trouble in the after-treatment; new bone did not form, and bone-grafting would have to be done. Bone-grafting into a septic cavity might be most difficult, and the time spent in the after-treatment would be longer than after the gutter operation.

Mr. T. Jason Wood (Bradford) reported a virulent fatal case of staphylococcal infection proceeding apparently from an ordinary boil which had disappeared at the time of operation. Two cases were cited of elderly men, aged between 65 and 70, who developed acute septic arthritis of the knee as the result of persistent osteomyelitis contracted in childhood.

Mr. Lipscomb (Sydney) remarked that the disease was of less frequent occurrence in Australia than in Great Britain; this might be due to the warmer climate and the fact that the general resistance of the people was greater. He insisted that early interference in acute bone conditions would in most cases clear up the disease, and that only in few cases would the condition progress and necessitate more drastic surgical interference. The infection was generally staphylococcal, since the staphylococcus was essentially a skin organism. The lessened occurrence of the disease in Australia might perhaps be due to the fact that in warmer climates swimming and bathing were indulged in much more freely than in colder climates.

Sir Cuthbert Wallace (President of the Section) said that osteomyelitis was a dirt disease and was seldom seen among those in whom personal cleanliness was easy. It was a disease that was getting rarer and milder. For the proper treatment one must determine whether the disease was really a septicaemia with local manifestations or primarily a local disease that became systemic. As regards operation, it should be confined to the more marked cases; the milder local lesions were capable of curing themselves.

SURGICAL TREATMENT IN AURICULAR FIBRILLATION OCCURRING IN TOXIC GOITRE.

(*With Special Plate.*)

BY

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Assistant Director, Surgical Professorial Unit, and Assistant Surgeon to St. Bartholomew's Hospital.

THIS paper is complementary to a paper read by my colleague Professor Fraser at the annual meeting of the Association of Physicians in 1923, and published in the *Quarterly Journal of Medicine*, July, 1924, which dealt with the physiological and pharmacological aspects of this subject, drawn from cases under our care.

Between 1907 and 1919, among cases of exophthalmic goitre operated upon by me there were a number who had irregular heart action. I had reason to believe that hyperthyroidism (feeling of heat, restlessness, tremor) was present, and on that account the condition was being aggravated, and therefore it seemed rational to prevent further visceral damage by reducing the amount of the secreting gland. Cases of this type were reported by me in various publications from 1907 to 1917. The degree of improvement varied. Some were more comfortable, some were able to return to work after having been bedridden.[1]

In 1917 a man (Case 1), greatly emaciated, with rapid irregular heart action, previously regarded as suffering from sprue, was seen by Sir Hector (then Dr.) Mackenzie, and correctly diagnosed by him as a case of exophthalmic goitre. Subsequent to partial thyroidectomy his heart became regular.

In 1919, in Australia, I saw a patient (Case 2) with irregular heart action. In this patient the goitre was an adenoma, completely intrathoracic. After this was enucleated the heart became, and has remained, regular.

Up to this time it had not been possible for me to have basal metabolic rates measured, nor electrocardiographic records made, so that I had to judge by clinical evidence whether hyperthyroidism was still present and damage still being wrought; no permanent records of the auricular fibrillation were made. Also the pathology of the resected gland tissue was not completely recorded. Subsequently, working with the professorial unit at St. Bartholomew's Hospital, it became possible to have graphic records made of such cases, and the sequence of events established. The pathology could also be studied.

The first case after this time was a woman (Case 3) who had been under medical treatment by one of my colleagues. There was a twelvemonth's history of serious illness. She had oedema of the legs. There was a loud systolic murmur at the apex.

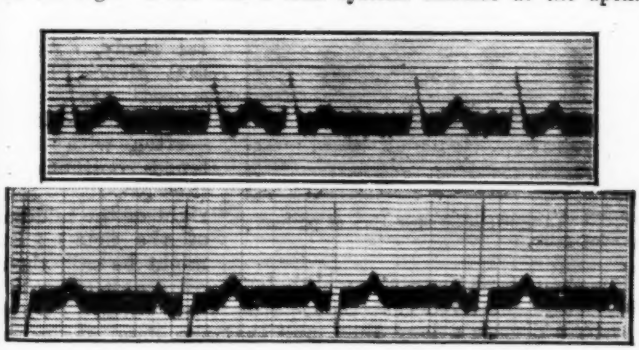

FIG. 1.—Case 3. The upper tracing shows auricular fibrillation. The lower one normal rhythm.

The pulse was irregular in force and frequency. On September 27th, 1920, the right lobe and isthmus of the thyroid gland were removed under local anaesthesia. Three weeks later two-thirds of the left lobe were removed. She went to a convalescent home, and on her return visited the hospital to show herself. Her pulse rate was 72 and the rhythm regular. In this case the heart became regular spontaneously without other aid than the removal of sufficient of the toxic cause, and has remained so. There is no oedema. The woman is working hard. She manages swing-boats in the summer in addition to doing her household work.

(Electrocardiogram before and after operation, and photomicrograph of gland, shown. No. 3.)

During this time Professor Fraser had been working at the problem of auricular fibrillation, and we had seen together such cases as came into our respective wards. In the next patient surgical and medical co-operation was required to cause the return of the heart action to normal rhythm.

A naval rating (Case 4) had been sent to me to St. Bartholomew's Hospital from Sydney in 1922, after the right lobe of his thyroid had been removed there. He had had exophthalmic

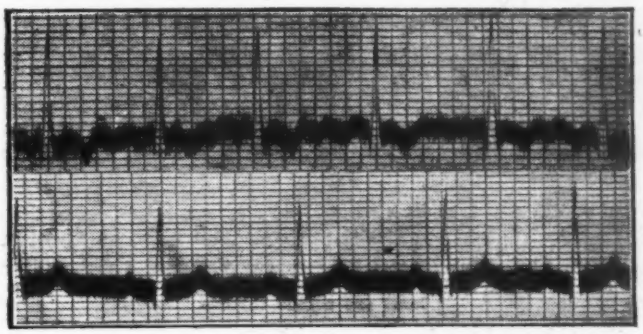

FIG. 2.—Case 4. The upper tracing shows auricular fibrillation. The lower one normal rhythm.

goitre for five years. The pulse had been irregular for at least two years. Being a sailor he was sent by the Ministry of Pensions to the Heart Hospital on arrival in England, where he came under the care of Dr. Strickland Goodall. Electrocardiographic records were taken, and he was finally transferred to me. Two-thirds of his remaining lobe were removed under local anaesthesia. His heart did not become spontaneously regular, but after four doses of quinidine sulphate (5 grains each) the heart became regular, and there has been no auricular fibrillation since.

(Tracings, basal metabolic rate, and pathological sections shown. No. 4.)

The next two cases of auricular fibrillation became regular spontaneously after a sufficiency of the thyroid gland had been removed. They differed strikingly in several ways.

One (Case 5) was a typical case of exophthalmic goitre—a woman, about 29, who had tremors and characteristic eye signs, but also with a systolic blood pressure of 200. She was watched for a month before operation could be risked. Removal of one lobe made no difference to the fibrillation, and she remained very ill. After removal of two-thirds of the second lobe (June, 1922) the heart became regular and has remained regular. This woman is very active, and states that she walks six miles at a time. Both operations were performed under local anaesthesia.

(Photomicrograph of gland shown. No. 5.)

The other case (Case 6) had been ill for a long time. Eight years before the time when I saw her with Sir Hector Mackenzie she had been in bed for six weeks on account of her heart symptoms. She had not improved during those eight years. Two years before her operation her feet and legs had become oedematous while she was in bed. When we saw her in 1922 her heart was fast and very irregular; her feet and legs were swollen, and she had been in bed for eight weeks. The thyroid gland was very large and symmetrical, but she had not quite the look of a case of Graves's disease in that there was not the usual mental restlessness. A venous pulse was visible in the neck, and distended veins were present over the chest. In this case the absence of mental restlessness made it safe to remove all of one lobe and two-thirds of the other at one operation under local anaesthesia. It was six months before the irregularity completely disappeared. The pulse has remained regular (rate 72 to 84) for the last two years and the oedema has disappeared.

Of the next two cases, the goitre in one (Case 7) consisted of multiple adenomata. He had had goitre "all his life." His heart had long been irregular. It became regular spontaneously after removal of most of the goitre in March, 1922, but fibrillated for a short time two months afterwards. He was given a few doses of quinidine in Edinburgh, and his heart has remained regular for two years subsequently. Part of this goitre was so deep in the thorax that its lower extremity could not be reached by the forefinger. It was gradually worked up by a finger on each side of it.

The other one (Case 8), aged 49, was an extremely bad case of exophthalmic goitre. I believe his heart had fibrillated for eight years. The rate was uncountable on account of its rapidity and its irregularity. Removal of the first lobe made no difference. After removal of two-thirds of the second lobe in January, 1923, he was given quinidine. On the tenth day

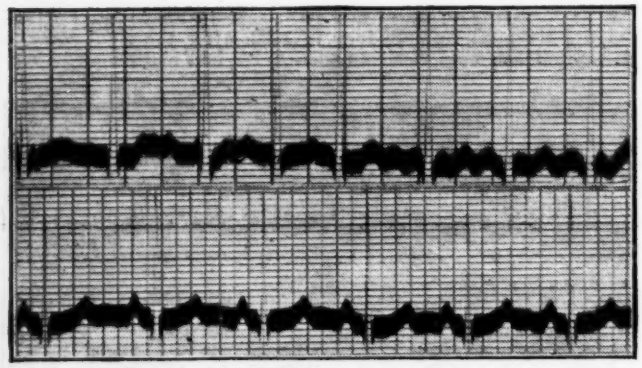

Fig. 3.—Case 8. The upper tracing shows auricular fibrillation. The lower one normal rhythm.

after this the heart became regular. Possibly the length of time during which his heart had fibrillated accounted for the amount of quinidine required. In this case premature contractions now occur, but no auricular fibrillation.

(Electrocardiogram before and after operation, and photomicrograph of gland, shown. No. 8.)

In two cases of true Graves's disease (Cases 9 and 10) with auricular fibrillation the heart's action has become regular spontaneously after removal of one lobe and two-thirds of the second lobe of the thyroid gland (without administration of quinidine). In Case 10 the heart became regular after ligation of the superior thyroid arteries. Auricular fibrillation recurred on exertion. It disappeared after a sufficient partial thyroidectomy.

(S. H. Electrocardiogram before and after operation, and photomicrograph of gland, shown. No. 10.)

There are two patients (Cases 11 and 12) in whom I have removed only one lobe, and in neither of these has the heart become regular. In one case the heart can be held regular with quinidine, but under stress it fibrillates again. The other one, a comparatively young man, has had no quinidine, but his heart could, I feel sure, be made regular by the removal of two-thirds of the remaining lobe. He feels well enough to do the work he wants to do in his present condition. The photomicrographs (Nos. 11 and 12) show how active the glands are in each of these two cases. It is not reasonable to expect that the fibrillation will stop while so much extremely active gland remains.

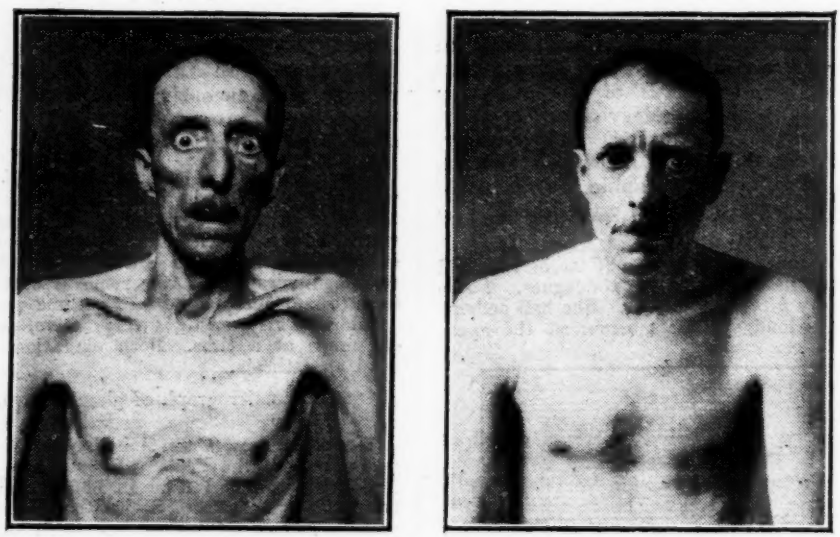

Fig. 5.—Photographs taken before (May, 1924) and after (August, 1924) operation of patient No. 15 in the appended table.

One patient has died, possibly as the result of the administration of quinidine, though this is doubtful. The electrocardiogram showed that it was not a pure case of auricular fibrillation, some degree of heart-block being also present, and quinidine was being given tentatively. One patient—very ill—died subsequent to operation. She was too ill a person to have been operated upon.

Patients are not infrequently seen who have auricular fibrillation associated with goitre, but in whom the goitre is not the cause of the auricular fibrillation. It is necessary to be alert to this type of case. A diastolic murmur or a history of rheumatic fever may put one on guard, and the condition is not just that of a thyrotoxic person. On the other hand, there are many cases in which it is obvious that thyroid toxaemia is present. The rapidity of the pulse rate, the moist heat of the skin, the staring, restless eyes, show a hyperactive condition of the thyroid. This can be confirmed by taking the basal metabolic rate. Further subsequent proof of the activity of the thyroid is given by

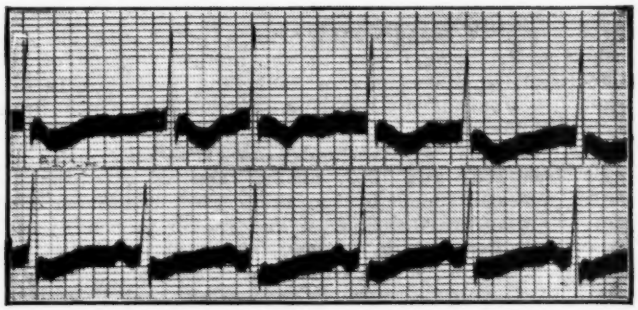

Fig. 4.—Case 10. The upper tracing shows auricular fibrillation. The lower one normal rhythm.

the microscopical examination of the gland, and the final evidence of the goitre factor, for the patient, is the disappearance of the auricular fibrillation. One patient, whose fibrillation had lasted for at least several years, writes: "Words cannot give any adequate idea of the quiet peacefulness that has replaced the restless breathless efforts of the last few years."

Since writing the above the *Medical Journal of Australia* for March 1st, 1924, has come to hand, in which Turnbull makes the statement that in two cases operated upon by me before I left Australia, auricular fibrillation, which was present before operation and still evident three weeks later, had disappeared when the patient returned after three months.

The photographs (Fig. 5) show the difference in the appearance of the individual before and after the operation.

The microphotographs repay careful study. At a first glance, large spaces are seen filled with colloid—often with flattened epithelium. (See No. 10, to the right of the middle of the field.) It might be said that they are not pictures of exophthalmic goitre at all, but it is to be remembered that these patients have been ill with Graves's disease a long time, and that the gland has gone through the pathological stages so well described by Marine,[2] but there are seen to be in all of them areas of extreme activity and high columnar epithelium. It is the secretion from these areas which is damaging the heart.

Summary.

Auricular fibrillation is one not infrequent result of thyroid toxaemia. It may result from toxic adenoma or from Graves's disease.

In toxic adenoma it may disappear when the adenoma or adenomatous masses have been removed.

In Graves's disease it may disappear temporarily when vessels are ligated, or when one lobe has been removed. When it has done so, in our experience, it has recurred under stress. When sufficient of the second lobe has been

No. 10.—Mr. H. Graves's disease eighteen months. Electro-cardiographic records complete. Localized papilliferous formation with columnar epithelium. × 200.

No. 17.—Mrs. P. Goitre fifteen years; heart irregular for seven years. Electro-cardiographic record. × 56.

No. 8.—Mr. C. W. Graves's disease fifteen years; fibrillation eight years. Electro-cardiographic records complete. Columnar epithelium. × 224.

No. 14.—Miss G. C. × 224.

No. 4.—H. R. Graves's disease five years; fibrillation two years. Electro-cardiographic records complete.

No. 12.—Miss G. Graves's disease seven years. Operative treatment incomplete (only one lobe removed). Note high columnar epithelium. × 496.

No. 3.—Mrs. S. Electro-cardiographic records complete. Note high columnar epithelium. × 272.

No. 11.—Mr. V. F. One lobe only removed. Extremely active gland, still fibrillating. × 56.

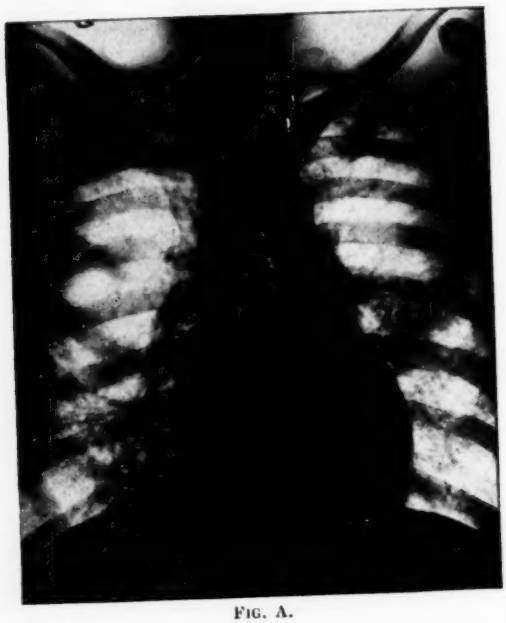

FIG. A.

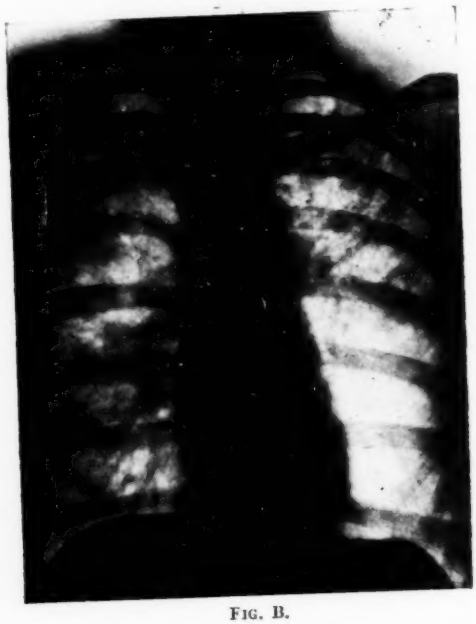

FIG. B.

FIG. C.

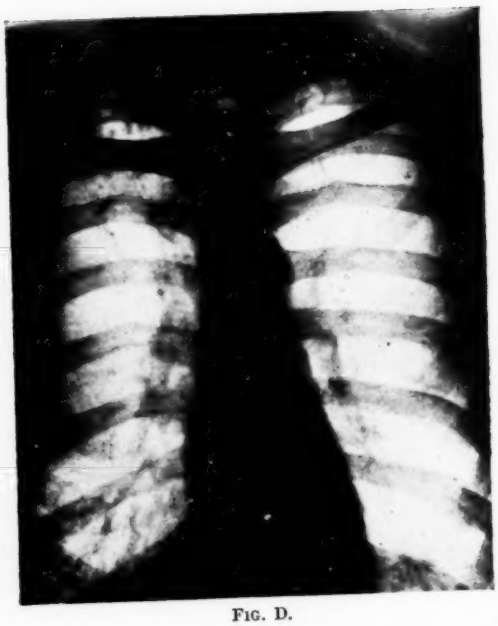

FIG. D.

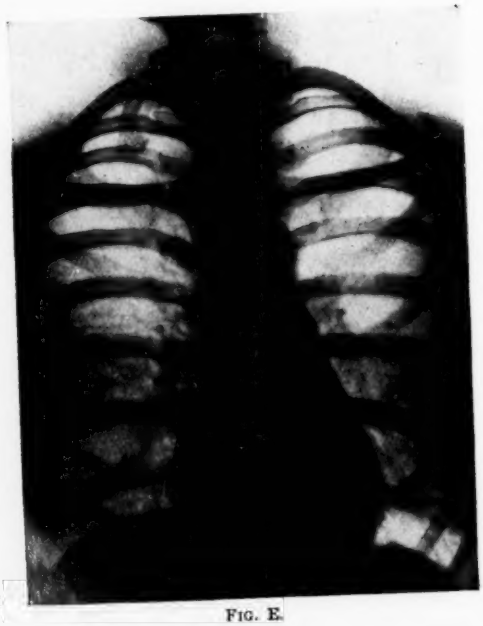

FIG. E.

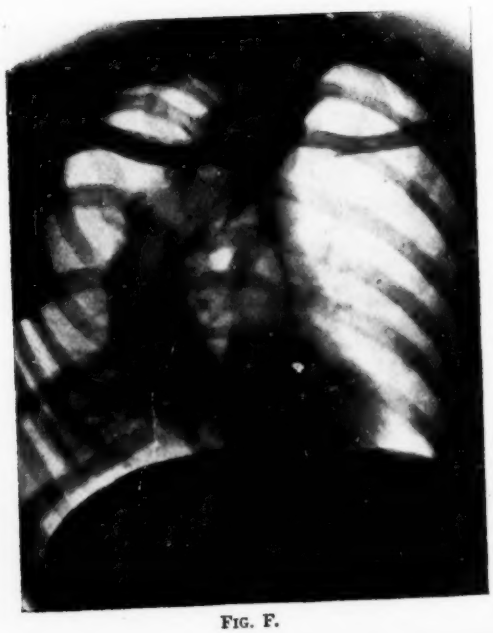

FIG. F.

removed it may disappear spontaneously and permanently, or it may require the administration of some quinidine before this occurs.

When one lobe alone has been removed in a case of Graves's disease, quinidine has not been capable of holding the heart regular.

In two cases in which auricular fibrillation has disappeared occasional premature contractions occur.

The dangers of quinidine must be appreciated before it is given. In this series the administration of quinidine has been controlled by Professor Fraser.

The causation of Graves's disease, or its treatment, does not come within the scope of this paper. It is a record of our experience in dealing with one late manifestation.

I am indebted to Dr. Arnold Stott and Dr. Strickland Goodall for the electrocardiographic records, and to Mr. G. L. Keynes and Miss Vaughan, of the Surgical Professorial Unit of St. Bartholomew's Hospital, for the photomicrographs.

Case No.	Age.	Length of History of Disease.	Electrocardiographic Records.	Basal Metabolic Rate.		Amount Removed.	Auricular Fibrillation Disappeared	
				Before.	After.		Spontaneously.	With Quinidine.
1	—	2 yrs.	—	—	—	1⅞ lobes	Yes	—
2	—	Some years	—	—	—	Adenoma	Yes	—
3	45	1 yr.	Yes	—	—	1⅞ lobes	Yes	—
4	40	5 yrs.	Yes	+9%	+4%	1⅞ lobes	—	Yes
5	29	1 yr.	—	—	—	1⅞ lobes	Yes	—
6	48	8 yrs.	—	—	—	1⅞ lobes	Yes	—
7	57	Many years	Yes	—	—	1⅞ lobes	—	Yes
8	49	15 yrs.	Yes	—	—	1⅞ lobes	—	Yes
9	39	Many years	—	—	—	1⅞ lobes	Yes	—
10	40	1½ yrs.	Yes	+28%	−2%	1⅞ lobes	Yes	—
11	37	7 yrs.	—	—	—	1 lobe only	No	No
12	46	7 yrs.	Yes	+44%	+25%	1 lobe only	Disappears but recurs	
13	60	3 yrs.	Yes	+53%	+47%	1⅞ lobes	No	No
14	21	7 yrs.	—	+64%	+10%	1⅞ lobes	Yes	—
15	45	2 yrs.	Yes	+49%	+15%	1⅞ lobes	Yes	—
16	49	1½ yrs.	Yes	—	—	—	Yes	—
17	38	15 yrs.	Yes	—	—	1⅞ lobes	Yes	—
18	This patient died							

Note.—All the cases, with the exception of Nos. 2 and 7, were of the type of Graves's disease. Case 2 had an intrathoracic adenoma; Case 7 multiple toxic adenomata (intrathoracic). Nos. 4 and 8 have now premature contractions but no auricular fibrillation; No. 13 is the patient who died three months later, and one other case (*vide supra*) died after operation.

REFERENCES.

[1] BRITISH MEDICAL JOURNAL, May 22nd, 1909. [2] *Cleveland Medical Journal*, March, 1913.

DISCUSSION.

Mr. C. A. JOLL (London) pointed out that Dr. Strickland Goodall, working with clinical material provided by Mr. Joll, had shown that auricular fibrillation was the commonest cause of irregularity of the heart in Graves's disease, and occurred in approximately 10 per cent. of cases. Dr. Goodall had taken electrocardiographic records of all cases before and after operation, and while in a considerable percentage the auricular fibrillation rapidly cleared up after the operation, in a small number auricular fibrillation was actually developed after operation in patients previously free from that condition, and might be fatal. He added a warning not to expect to cure invariably auricular fibrillation in Graves's disease by operation.

Mr. DUNHILL, in reply, said that Mr. Joll had stated that it was rather optimistic to claim that 100 per cent. cases of old-standing auricular fibrillation recovered normal rhythm after operation, and that the experience of other operators did not quite bear out the statement. The claim was not made that 100 per cent. recovered. Two in this series, for one reason or another, had died, and in two others—due to insufficient removal of gland—the heart still was fibrillating. These two possibly supplied the answer to Mr. Joll's statement. Mr. Dunhill believed that when two-thirds of the remaining lobe had been removed the rhythm would become normal, for it was true that in all the other cases (fourteen in number) the auricular fibrillation, old-standing in every case, had disappeared. These cases and their records were available for examination.

BLOOD DONORS.

BY

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BLOOD transfusion has now become a more or less standardized procedure. Many practitioners are familiar with the technique, and the operation can usually be carried out with some degree of precision both as regards method and results. On these points there is not much that is new to be said. This short communication will deal therefore with a side of the problem which is usually not sufficiently considered—namely, the question of how to obtain a supply of blood when and where it is needed. The performance of a blood transfusion postulates the presence of at least one willing and suitable blood donor, and in hospital practice at any rate the provision of this important individual is too often left to Providence—a source of supply which is notoriously uncertain in its operations. This prevailing uncertainty as to how or where to obtain a blood donor often results in the postponement of the decision to transfuse until the patient has passed from the category of hopeful to that of hopeless prognosis, and the operation is in the end forestalled by death. This position was recently illustrated in a very tragic manner, which was exploited by the daily press to its full extent. A member of our own profession was at death's door with typhoid fever, and as a last hope a request for a volunteer as blood donor was broadcast by wireless. A number of generous individuals who had recently recovered from typhoid, of course, responded, only to be told that the patient had already passed beyond their aid. Better organization might have avoided the publicity, though the problem was not a usual one. The time when a transfusion carried out in civilian practice was matter for a sensational headline in the newspaper has now almost passed, but there still lingers a popular disposition to regard a blood donor as a "hero" who has endangered his own life to save that of another. It should now be widely known, however, that acting as a blood donor does not entail any suffering, and only a very temporary disability. Extensive experience has taught me that a healthy young man can part with 750 c.cm. of blood, or even more, without any immediate effect, such as faintness, and that after a short rest he can perform an ordinary day's work as efficiently as if nothing had happened. If fainting does occur, it bears a direct relation to the psychological state of the donor at the time. If he approach the operation without apprehension there will be no ill effects. If, on the other hand, the donor be imbued with a conscious heroism, a painful or unpleasant process is anticipated; fear and faintness are then the natural consequences. Against this may be set the fact that several donors have told me, a few days after giving blood, that they felt definitely better and more vigorous after, than before, the operation. Nobody supposes that phlebotomy, so extensively practised by our ancestors, was based entirely on superstition. An American writer has shown that a large proportion of blood donors experience not only a feeling of well-being, but also an increase in weight, after the operation. It has also been found that a loss of 500 c.cm. of blood can be made good in less than a week.

In considering how donors are to be obtained it is first necessary to be clear as to what kind of individual is most suitable for the purpose.

1. *Sex.*—In the first place men are more suitable than women. Equanimity is, as already explained, an important asset in a donor. Large and easily accessible veins, such as are more often found in men than in women, are also of considerable importance. A thick layer of subcutaneous

fat may render the introduction of a large-bore needle into a vein a matter of some difficulty, and it is of the first importance that the drawing of the blood should be carried out with precision and without causing pain or injury to the donor. It should never be necessary to expose and ligature the donor's vein. It has also been shown that acting as donor is liable to produce in women a slight degree of anaemia. This very seldom happens in men.

2. *Age.*—A donor should be young, but not too young. Again, the psychological factor is affected by age. Furthermore, a rapid and complete physiological accommodation should follow the withdrawal of circulating fluid, if after-effects are to be avoided. The donor should therefore be not younger than 20, but not older than 40.

3. *Health.*—Emphasis need scarcely at this date be laid upon the necessity for employing a healthy donor. Transfusion has on several recorded occasions been responsible for the transmission of syphilis, malaria, and even of measles. If it is intended to use any given donor for more than one transfusion as occasion offers, it is an additional advantage for the operator to have some personal knowledge of the donor's circumstances and habits. His Wassermann reaction must be tested before he is used for the first time, and, if a long interval elapse, it should perhaps be tested again before he is used a second time. But personal acquaintance may make the repetition of the test unnecessary.

4. *Blood Group.*—As regards the blood group of a prospective donor, it has been customary to refer to individuals belonging to Group IV of Moss as "universal blood donors," on the supposition that the blood of a Group IV donor may be given to any and every recipient. I believe this statement to be only an approximation to the truth, and I am sure that it is safer to give some patients the blood of their own group rather than that of Group IV. This is especially important in treating blood diseases, such as pernicious anaemia, but I cannot discuss this in any detail at the present time. The inference is that it is better to have donors of all groups available rather than members of Group IV only.

In private practice I have not found it difficult to arrange for a regular supply of suitable individuals who will be ready to give their blood at any time in return for an adequate reward. They soon become thoroughly accustomed to the procedure, and it is sometimes convenient to have a donor who can himself render active assistance when his blood has been taken. I always have more donors of Group IV available than of other groups, as there will probably be no opportunity for selecting in an emergency, and these individuals are fortunately not difficult to find. It is scarcely possible for a man to be a "professional donor" to the extent of making this his only means of livelihood, and it is likely to remain a part-time profession at the present market rate for blood. It is, however, remarkable how frequently a healthy donor can part with blood without experiencing any ill effects. It is recorded that one individual has given blood at an average interval of once in six weeks for a period of more than four years. Another has given eleven donations in eight months, an average of one every three weeks.

A more difficult problem is the organization of an adequate supply of blood donors for hospitals, and in discussing this I shall assume that no blood donor will receive any payment. Here, again, there will always be the two types of cases to be treated: (1) the emergency, such as traumatic haemorrhage or severe haemorrhage from a gastric or duodenal ulcer, and (2) the medical case, such as pernicious anaemia, where the necessity for transfusion can be foreseen and arrangements made at leisure.

I will take in succession the various possible sources of blood donors and indicate which appear to me to be the most suitable for general use.

1. Relations of the patients may occasionally be used, but more often than not no suitable relation can be found, and sometimes they are unwilling. It is now generally realized that consanguinity is no guarantee of compatibility of bloods, so that relations often have to be rejected on this ground alone. Relations are very often not available in an emergency, so that this source of supply could not in any case be regarded as a source upon which dependence could be placed.

2. Volunteers in the wards can often be found, and this is a source of supply which I have very frequently used in an emergency. A young man, who has come into hospital for an operation for hernia or other condition which is unaccompanied by any constitutional disease, is usually willing to act as blood donor when it is made plain to him that his own recovery will not be in any way prejudiced, but that he may be instrumental thereby in saving someone else's life. But, again, this source of supply is uncertain. There may be no suitable patients, or suitable patients may be unwilling or may belong to the wrong blood group.

3. "The unemployed" have been used at one metropolitan hospital, but clearly donors from this source cannot be expected to volunteer, and the question of payment lies somewhat outside the scope of this communication.

4. The police force has been suggested as a source of supply, and has, I believe, been used for this purpose; but it is obviously impossible for a chief constable to permit his men to be taken off duty at any moment in order to supply blood when required. The policeman's lot is said not to be a happy one, and it would be putting a rather severe strain on his already almost superhuman benevolence to expect him to give his blood to all who need it.

5. Members of the nursing staff of a hospital or hospital attendants should certainly not be used as blood donors. The hard work and exacting conditions of life in hospital are not productive of robust health, and the principle of using these individuals, when once established, would introduce a feeling of moral obligation to give blood, which must be carefully avoided.

6. The use of medical students as donors is to be deprecated for the same reasons. Students are used extensively in some American hospitals, but they are given a considerable sum of money whenever they do so, and volunteering is placed thereby on an entirely different basis. Where a fee is accepted, the sense of moral obligation will not be induced.

7. A properly organized supply of volunteer blood donors must therefore be found outside the hospital among healthy individuals who will not be subjected to any undue moral suasion. I would suggest that the various organizations of Red Cross workers throughout the country may perhaps afford one of the best solutions of the problem. These organizations consist of individuals of the highest character and of good physique, who are anxious to give personal service. Their training also gives them some insight into surgical procedures, so that they will regard the operation of transfusion with equanimity. If their interests are safeguarded by a careful preliminary examination and by a correct technique in performing transfusions, donors enough for the needs of all hospitals could probably be provided in this way.

DISCUSSION.

Mr. H. P. Winsbury White (London) asked what Mr. Keynes's technique was, and whether any alteration from the technique as practised during the war had taken place.

Mr. F. J. S. Heaney (Liverpool) said that in Liverpool a register was kept of blood donors, who were paid for their services and were available for neighbouring hospitals.

Mr. Colin Mackenzie (Bradford) said that Mr. Keynes's paper was of great importance at the present juncture. The system at Bradford was to keep a register of Group IV donors whose Wassermann reaction was negative, and to pay £10 for their blood. Immuno-transfusion was likely to increase. A case of septic gunshot wound of the knee-joint was successfully treated by him in France by a transfusion of blood from a donor previously vaccinated with a vaccine prepared from the knee-joint.

Mr. Geoffrey Keynes said that his communication was directed chiefly to the question of obtaining *unpaid* blood donors. It was not difficult to obtain donors by advertising a reward of £5 or £10, but it was not so simple to obtain in this way individuals whose Wassermann reaction was

likely to remain permanently negative. The authorities of many hospitals did not favour the idea of paying blood donors when it was brought up for discussion, and other arrangements had to be made. With regard to technique, he thought that the method of using citrated blood gave the most certain results in general use. The chief recent advance was the process of immuno-transfusion, introduced by Sir Almroth Wright and his co-workers, in which defibrinated blood was used. The efficacy of this method for patients suffering from severe infections was still *sub judice*. Other methods, such as the Kimpton-Brown tube or multiple syringes, were used with success by some operators, but these were less suitable for general use than citrated blood, which gave perfectly satisfactory results in all surgical cases. No further advances of importance had yet been recorded.

TWO PROBLEMS IN THE TREATMENT OF CLEFT PALATE.

BY

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(*a*) *The Problem of the Prominent Premaxillary Segment in Tripartite Palate.*

THE beak-like protuberance of the intermaxillary segment in cases of complete double hare-lip and cleft palate is so pronounced, and the strain put upon the sutured edges of the double hare-lip, by suture of both sides simultaneously, is so great that surgeons formerly removed the premaxilla, to abolish tension.

The loss of the incisor teeth, and the tightness and flatness of the new upper lip, as compared with the lower, produced such deformity that removal of the premaxilla has been abandoned. Wedge-shaped excision of part of the nasal septum, accompanied by pressing back the prominent premaxilla, facilitates suture of the lip, and is frequently practised. This inevitably results in tilting of the incisor-bearing segment, and the upper incisors when they erupt will be directed backwards, and, when the mouth is closed, will lie behind the lower ones instead of just in front as they should.

A sliding operation on the septum, though feasible and though allowing normal eruption of the upper incisors in relation to the lower, means unnecessary and perhaps harmful interference with the vascular and nerve supply of the premaxillary segment.

It is not necessary to close both sides of the lip simultaneously. Closure of one side in the first few weeks of life, and of the other about two months later, can be performed without undue tension on the suture lines. This procedure results in normal relation of the upper to the lower incisor teeth owing to the backward pressure of the united lip. Hence no operation on the central segment of the palate is required, for in about two years' time the premaxillo-maxillary cleft is abolished on both sides, and the remainder of the cleft can be treated at the time judged most suitable.

(*b*) *The Problem of Speech after Cleft Palate Operations.*

In my experience good speech after operations for cleft palate is rare. Closure of the cleft, though difficult, is an easier problem to solve than is that of producing clear articulation.

I firmly believe that the short soft palate, almost inevitable with our recognized methods of closure, is the cause of our failures, and that progress will not be made until we recognize and deal with this difficulty.

I think the cleft soft palate is too small at birth, and that it is made still shorter by paring and suture. Unless the newly formed palate is long enough to shut off, at will, the nasal from the oral cavity, articulation must be defective except for the sounds *m*, *n*, and *ng*. To make such closure possible the surgeon must diminish the gap between the posterior end of the soft palate and the posterior pharyngeal wall. To do this he must either make a longer soft palate or increase the forward prominence of the posterior pharyngeal wall, or do both.

The latter procedure has been advised and performed by Spitzy and Gratz, who injected paraffin. A fat graft would be preferable, but asepsis would be difficult. Neither method appears likely to come into general use, and hence one's efforts must be directed towards making a soft palate of sufficient length. This can be done only at the expense of the tissues of the hard palate. If much hard palate has to be used to make good the deficiency in the soft, the gap in the hard palate cannot be closed by operation. But, as Mr. Gillies has shown, that defect can easily be made good by prosthetic apparatus.

In short, to my mind, the adoption of methods based on the principles recently enunciated by Mr. Gillies means a real prospect of improvement in our results as far as speech is concerned; the surgical triumph of complete closure of the palate is an empty one if the patient cannot speak clearly.

DISCUSSION.

Mr. C. A. JOLL (London) agreed with Mr. Goyder in deprecating the removal of the premaxilla, but favoured the paring down of the prominence with a sharp knife. This, he claimed, enabled the double hare-lip to be closed in one stage as a rule—a point of importance since the cosmetic result was, in his opinion, better when both sides of the lip could be dealt with together. He had completed a series of 100 operations for cleft palate without a death by the Langenbeck or Smith method. The result of the operation on the speech was not, in Mr. Joll's opinion, so unsatisfactory as Mr. Goyder suggested, though, admittedly, perfect speech was not often achieved. He was not sure whether Mr. Gillies's method would really give improved speech as he had only practised it recently, but up to now he was not favourably impressed.

X-RAY EXAMINATION IN RELATION TO SOME ASPECTS OF PULMONARY TUBERCULOSIS.

BY

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(*With Special Plate.*)

WHILE the value of the *x*-ray examination of the chest in cases of tuberculous or of suspected tuberculous disease of the lungs is now well recognized by the majority of clinicians, scrutiny of the records of several thousand radiological examinations of the chest shows that the majority of the cases are sent to the *x*-ray department merely for confirmation of the clinical findings. When the radiologist is able to confirm the clinical diagnosis of tubercle, the special value of the radiograph lies in the fact that the extent of the lesion is accurately delineated. Prognosis may be markedly influenced by a knowledge of the exact position and extent of cavities, and it is frequently possible to differentiate between the "woolly" mottling indicative of active disease and the characteristic appearance of the quiescent or healed lesion, showing fibrosis or calcification, or both.

It is evident that the radiologist may thus be able to amend the diagnosis and influence the prognosis in cases already labelled positive. Cases tentatively labelled negative and confirmed as such by *x* rays call for no comment.

It is in the remaining portion of the cases under review that the radiologist's activities become more than supplementary to those of the clinician. Here the radiograph is of paramount importance. Reference to some of the cases detailed below make it clear at once that an *x*-ray examination may be of such supreme value that a radiologist's report should be obtained wherever there is a shadow of doubt as to the presence of tubercle. I shall endeavour to prove that this is essential in cases where the evidence gleaned from the physical examination of the chest is not sufficient to account for the symptoms.

The group may be subdivided into five types, and I propose to describe these in the order of the frequency with which they appear in the *x*-ray department.

Type I.

In this type the *x*-ray picture is that of extensive mottling of both lungs, symmetrical in character, with restricted movement of both diaphragms. Such cases may be sent to the department with the request "*x*-ray of chest for cause of pain below left clavicle," or "*x*-ray stomach and duodenum for suspected duodenal ulcer," no mention being made of suspected tuberculous disease of the lungs. The following three cases are illustrative.

Case I.

A male, aged 27, was sent to the *x*-ray department on November 15th, 1921, for *x*-ray examination of stomach and duodenum for suspected duodenal ulcer. The patient complained of pain in the stomach half an hour to an hour after food, marked loss of weight, and slight cough and expectoration. The family history was good. He had always been healthy up to two years before examination, when he commenced to have pain after food. He had never vomited and the pain did not tend to become more severe. He stated that he had been examined altogether by over twenty doctors, the majority of whom had examined his chest and told him that there was no evidence of disease. He had been treated during these two years for duodenal ulcer (light diet, etc.), but as he was gradually getting worse he was referred for *x*-ray examination to confirm the diagnosis. He was extremely emaciated and could only stand for a short period.

On examination of the stomach and duodenum after the test meal nothing abnormal could be detected, and it was evident that no sufficient lesion existed in this region to account for the patient's condition. In the endeavour to find some cause for his cachexia a screen examination of the chest was made. Extensive mottling of both lungs was seen, symmetrical in character, with restricted movement of both diaphragms. The radiograph (Fig. A) confirmed the screen findings, and the report was made that the *x*-ray appearances of the chest were typical of extensive tuberculous disease of both lungs. The sputum was then examined and found to be positive. The *x*-ray diagnosis was fully confirmed at the *post-mortem* examination seven weeks later.

Case II.

A male, aged 56, had always been a great athlete and had been in perfect health up to two years before being examined, when he had a severe attack of "influenza" and was in bed for several weeks. On getting up he found he was very short of breath and could not play more than five or six holes at golf instead of his former thirty-six. His doctor repeatedly examined his chest, but could detect nothing abnormal. Eighteen months after the "influenza" his voice became husky, and he was seen by an eminent physician, who told him his chest was "as sound as a bell." He therefore consulted a laryngologist. The latter found on laryngeal examination that there was double abductor paresis, and that both vocal cords were suspicious of ulceration. He therefore referred the patient to me for radiographic examination of the chest for either aneurysm, new growth, or tuberculous disease of the lungs.

The patient complained of difficulty in breathing, hoarseness, loss of weight, slight cough and expectoration, and pain below the left shoulder-blade. On *x*-ray examination of the chest extensive symmetrical mottling of both lungs was seen, with very little movement of the diaphragm. The radiograph (Fig. B) is typical of extensive tuberculous disease of both lungs, and a report was sent to this effect. The sputum was then examined and found to be positive.

Case III.

A male, aged 52, was sent to the *x*-ray department for examination of the gastro-intestinal tract with the diagnosis of "gastritis." He complained of vomiting and retching in the morning, cough with slight expectoration, pain in the left side of the chest and abdomen, and shortness of breath.

He had been quite healthy up to four years before examination, when he began to suffer from a troublesome cough and noticed he was short of breath. There was retching in the mornings with occasional vomiting. His doctor diagnosed "gastritis," and told him that his lungs were normal. He was treated for gastritis for four years, but was gradually getting weaker and losing weight. During this time his chest had been frequently examined and always pronounced normal.

The radiological examination of the gastro-intestinal tract proved negative, and I therefore examined the chest. I found mottling of both lungs, and reported that the *x*-ray appearance of the chest pointed to extensive tuberculous disease of the lungs. The sputum was subsequently examined and found to be positive.

I would draw attention in this type to the equal distribution of the disease in both lungs—that is, the symmetrical nature of the lesion. Melville,[1] in a paper on "Pulmonary tubercular disease as shown by *x* rays but without physical signs," suggests that his cases were not diagnosed clinically because (1) "the presence of slight emphysema tends to mask physical signs, and emphysema was present in certain of my cases," and (2) "abnormalities in the percussion note and in the breath sounds are not readily detectable at a greater depth than about 4 mm. from the lung surface where the area of infiltrated lung is small in extent."

Now in the three cases above quoted there was no evidence to suggest the presence of emphysema, and certainly the lesions were not small in extent; we must therefore look for some other cause to account for the failure to detect these cases clinically. I would suggest that this failure to diagnose cases of symmetrical disease is due to the lack of a basis for comparison between the two lungs. On physical examination the expansion, though diminished, is equal on both sides, the percussion note and breath sounds are similar, vocal fremitus and crepitus are equal; for these reasons the chest is passed as being normal and some other cause is looked for to account for the patient's cachexia.

Type II.

My next type is that in which the patient is sent for radiographic examination of the chest to confirm a clinical diagnosis of a tuberculous lesion at one apex. The *x*-ray examination reveals extensive mottled shadowing of the whole of both sides of the chest with the exception of one apex—the unsuspected one.

Case IV.

A female, aged 17, was sent to the *x*-ray department on March 8th, 1924, with the diagnosis "suspected tuberculous disease right apex." She complained of cough, expectoration, night sweats, loss of weight, and shortness of breath. The family history was excellent. She stated that she had been quite well up to six weeks before examination.

Screening demonstrated mottling of both sides of the chest with the exception of the extreme left apex, as shown in the radiograph (Fig. C). The sputum was examined and found to be positive.

Case V.

A male, aged 36, was sent for *x*-ray examination of (1) the chest for suspected tuberculous disease of the left apex, and (2) the gastro-intestinal tract for suspected gastric ulcer. He complained of slight cough and expectoration and pain in the epigastrium after food. There was no family history of phthisis. The patient had always been healthy up to four years before examination, when he had had a slight morning cough and expectoration. There was no history of haemoptysis. During the last three months he had lost weight and become very weak.

The radiographic examination revealed extensive mottling of both lungs except at the right extreme apex. Movements of the diaphragm on both sides were restricted owing to the presence of adhesions. The examination of the gastro-intestinal tract after a test meal revealed only simple gastroptosis and enteroptosis.

I have mentioned the examination of the gastro-intestinal tract because the patient's doctor considered this to be the important lesion. He was extremely surprised to learn that I considered that the radiological findings pointed to advanced tuberculous disease of both lungs with the exception of the right apex, and sent the patient to a private sanatorium for confirmation. The findings were confirmed, but the case was considered too advanced for sanatorium treatment. The sputum was found to be positive, and the patient died three months later.

I submit that the lesion is diagnosed at one apex because here there is a basis of comparison on clinical examination. The affected apex shows diminished expansion, dullness on percussion, increased vocal fremitus and resonance, and probably some adventitious sounds. The condition in the remainder of the lungs is missed for the reasons stated under Type I.

Type III.

This type is frequently met with in insurance cases. The patient, usually a male, wishes to take out a life insurance policy. Although the physician who examines him can detect no physical signs, he hesitates to give a clean bill of health as possibly the patient has been in a sanatorium for a few months years previously. The radiographic examination in these cases frequently reveals calcareous patches, usually in the region of the apices, pointing to an old healed lesion. The following case illustrates this type.

Case VI.

A male, aged 42, was referred for *x*-ray examination of the chest for "any evidence of tuberculous disease of the lungs." The patient looked the picture of health and weighed 203 lb. He stated that seven years before he had been "off colour" for some little time and had spent four months in a sanatorium. He wished to take out a life insurance policy, and the doctor who had examined him stated that he could find no clinical evidence of any tuberculous lesion.

On radiographic examination, however, definite opaque shadows were present at the right extreme apex (Fig. D), pointing to calcification having taken place in a healed tuberculous lesion.

Types IV and V are in an entirely different category.

TYPE IV.

The patient is sent to the *x*-ray department for examination of the chest for a suspected tuberculous lesion at one apex. The radiograph on the suspected side shows a cervical rib of the type which as a rule joins the first true rib near its sternal end, but the lung itself gives no suggestion of tuberculous disease. One case will illustrate this type.

CASE VII.

A female, aged 25, was sent for radiological examination of the chest with the diagnosis "phthisis right apex." She complained of pain in the right side of the chest, loss of weight, slight cough and expectoration, following influenza eighteen months before. The sputum was negative.

The radiograph (Fig. E) showed the presence of a cervical rib on the right side which almost joins the first true rib in front. There was no suggestion radiologically of tuberculous disease of the lungs.

In this type of case the cervical rib, the presence of which is unsuspected, gives rise to some lagging at the apex, slight dullness on percussion, and rather distant breath sounds, thus simulating an apical tuberculous lesion.

TYPE V.

A chest in which there is a marked degree of scoliosis combined with kyphosis gives rise to considerable difficulty to the physician, especially when he is required to make a negative diagnosis of tuberculous disease.

CASE VIII.

A female, aged 20, was sent to the *x*-ray department for examination for suspected tuberculous disease of the lungs. She complained of a troublesome cough, slight loss of weight, shortness of breath, and pains in the back. The sputum was negative.

The radiograph (Fig. F) shows a marked degree of scoliosis combined with kyphosis; there is no suggestion of phthisis.

In this type, therefore, the radiographic examination is of supreme value whether negative or positive.

CONCLUSION.

I would emphasize the following points:

I. The importance of the co-ordination of the clinical with the *x*-ray findings, for in many cases it is by this means alone that we can arrive at a definite and reliable diagnosis and prognosis.

II. The radiological examination should preferably be carried out by a trained radiologist, and it is essential that the *x*-ray findings and report should be made by him. Only too frequently one finds that in the smaller hospitals, and especially in tuberculosis centres, the *x*-ray department is left in charge of the house-surgeon or tuberculosis officer, with no training in radiology; they tend to rely on the screen examination or on indifferent radiographs and to make the *x*-ray appearances coincide with their clinical findings.

III. I would lay stress on the importance of taking a "diagnostic" radiograph in addition to carrying out the routine screen examination, for the sensitive *x*-ray film will show details which even the practised eye, under the most favourable conditions, fails to detect on the screen. Further, one has a permanent record of the condition, so that if, at any future date, the patient returns for another examination the previous radiograph can be produced and the two compared.

REFERENCE.

[1] *Arch. of Radiol. and Electrol.*, vol. xxviii, p. 23.

THE INDICATIONS AND CONTRAINDICATIONS FOR ARTIFICIAL PNEUMOTHORAX.

BY

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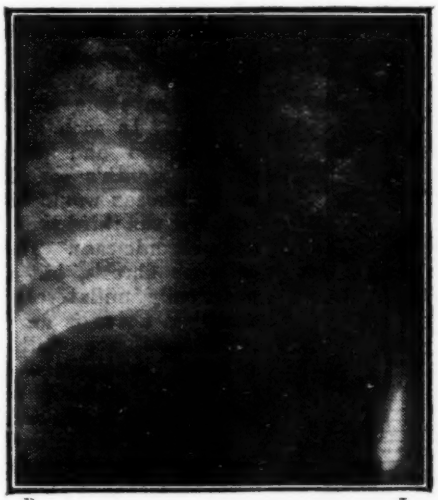
PHYSICIAN WITH CHARGE OF OUT-PATIENTS, CHARING CROSS HOSPITAL; PHYSICIAN, CITY OF LONDON HOSPITAL FOR DISEASES OF THE HEART AND LUNGS, VICTORIA PARK.

THERE has recently appeared an article[1] on artificial pneumothorax in which the writer advocates the treatment for cases of early pulmonary tuberculosis, and in which the following sentence occurs:

"I now come to my great point, and it is this, that I think in the future we shall not postpone the induction of artificial pneumothorax until other methods have been given a trial, but we shall carry it out at the earliest possible moment after the discovery, even of early consumption. If the patient refuses the treatment and prefers to try the effect of sanatorium methods or high altitudes first, that must be his affair. As doctors, I think we should advocate the induction of artificial pneumothorax on the affected lung at once, and then encourage the patient to stay in a sanatorium or at a high altitude if there is any suspicion that the other lung is affected."



R. L.

FIG. 1.—Before treatment by artificial pneumothorax.

R. L.

FIG. 2.—After pneumothorax well established.

This opinion raises a highly controversial issue and demands, in my opinion, a challenge.

Dr. Clive Riviere,[2] who was a pioneer in this subject in this country, and one of its strongest advocates when the treatment was looked upon with indifference or mild amusement, writes as follows:

"A disqualification, even more important in the writer's opinion than that afforded by bilateral disease, exists in the instance of early phthisis. The application of pneumothorax treatment to these cases can be shown on many grounds to be contraindicated. In the first place it is unnecessary, since early phthisis is a disease readily curable by other methods; in the second place it is inexpedient, since it brings with it risks and the chance of serious complications out of all proportion to the benefits it can confer. Pleural shock and gas embolism are, perhaps, but infinitesimal risks where modern methods are properly applied, but they cannot be altogether eliminated. . . . Furthermore, pleural effusion and the deformities which may follow it are complications which cannot in any way be avoided. Such effusions occur altogether in nearly 50 per cent. of cases, and though the shorter treatment required for slight disease would reduce this percentage, yet effusions must occur in many, and lung expansion fail or be incomplete in a few. Moreover, on re-expansion the pleural layers may become adherent, and the patient be thereby deprived of this treatment at a later stage when it may be truly indicated. In some cases, perhaps, the production of a pneumothorax at an unusually early stage may be justified on economic grounds, where the cure must be shortened in the case of a patient who is obliged to return to his occupation."

Fishberg[3] of New York, in his classic work on pulmonary tuberculosis, writes thus:

"There are some who believe that even incipient cases ought to be treated with pneumothorax. Among these may be mentioned Murphy, Lemke, Bullock and Twitchell, Gray, Forlanini, von Adelung, Piéry, and some others. Murphy and Kreuscher say: 'Is it well to wait until the outlook is so desolate? Is the lung collapse such a desperate operation as to be used only as a last resort?' With this I am not in agreement. If the treatment lasted only a certain and limited time, the patient could be informed of the details and given the choice. But, inasmuch as we are not in a position to give the patient definite information as to the probable duration of the treatment, and a large proportion of these cases recover under the old and tried methods, we should not subject mild incipient cases to the dangers, complications, and duration of pneumothorax."

This, I must confess, is my own faith, and I know that if I had an early tuberculous lesion in the lung I should not have an artificial pneumothorax performed upon myself, but I would have treatment on strict sanatorium lines; whereas if I had a progressive lesion I should, without hesitation, accept pneumothorax treatment.

There is little doubt that the immense value of artificial pneumothorax in selected cases lacks appreciation in this country, but its cause is not likely to be furthered by exuberant advocacy. So many cases of early phthisis show a tendency to spontaneous cure, so many cases of a fibrotic type of pulmonary tuberculosis display such chronicity and detract so comparatively little from the general health and activity of the individual, that many a false remedy gains a reputation for healing in this disease. Artificial pneumothorax has not hitherto been employed in such cases to any extent in this country; the test has therefore been severe; it has stood the test, and all those experienced in this treatment are convinced of its value.

As an example of what artificial pneumothorax can do in phthisis, and of what I consider an ideal case from the point of view of suitability, response to treatment, result, and convincingness, I will quote the following:

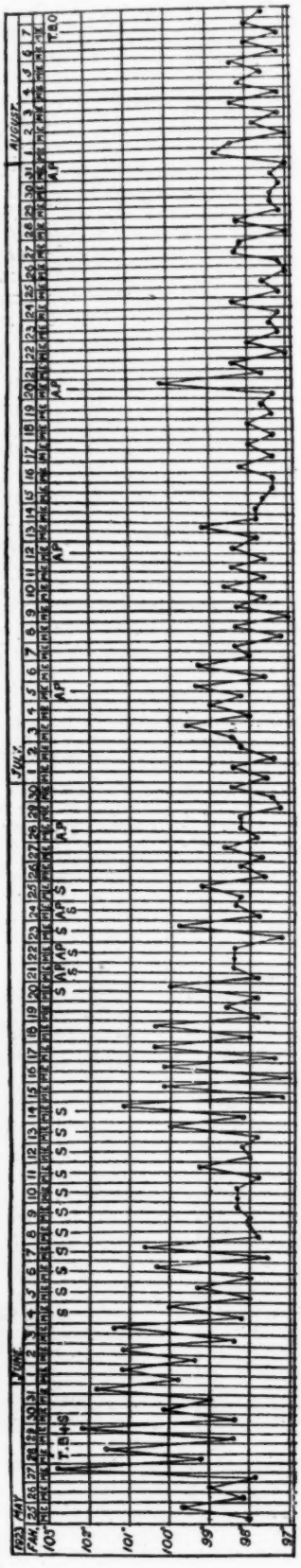
A woman, aged 29, was admitted to Victoria Park Chest Hospital on May 25th, 1923, complaining of cough, expectoration, loss of weight, and night sweats. She had had so-called "influenza" at Christmas, 1921, and had not been well since, suffering from cough, weakness, palpitation, and expectoration. A few months before admission tubercle bacilli had been found in the sputum. On admission she was wasted, with high fever and night sweats. The physical signs of disease were very marked on the left side and the heart was considerably displaced to the left. The accompanying radiograph shows the extent of the disease, the temperature chart the degree of its activity.

Artificial pneumothorax treatment was begun on June 21st. It might be thought from the displacement of the heart and the apparent fibrosis that collapse of the lung would be unlikely. Excellent, though not absolutely complete, collapse, however, came about without any difficulty. There can be little doubt that without the treatment the patient would have gone steadily downhill.

From the chart it can be seen that the temperature soon fell, the sweats ceased, the sputum became negligible, then absent, tubercle bacilli disappeared, and soon the patient was able to get up. She is now doing her household duties and is a cheerful and comparatively healthy woman. She has kept a temperature chart regularly ever since, and there has never been a rise of temperature. She comes up for refills once a month.

I am well aware that one case proves nothing, but this is only one of many similar cases. Many a patient with a fibrotic type of the disease may present physical signs as extensive and give an *x*-ray picture as bad as that shown here, and yet have few symptoms of active tuberculosis and live a fairly unrestricted life for many years. But this case, though indeed fibrotic, evidence of which can be seen by the displacement of the heart to the left, leaving the intervertebral discs uncovered, showed every sign of marked activity and downward progression. She was cyanosed and wasted, breathless and toxic; there were sweats almost nightly and high fever.

In such a case, I take it, there can be no two questions about the desirability of treatment by artificial pneumothorax.



Indications.

In my opinion the following are the indications for this treatment. First, pulmonary tuberculosis if of the following types:

1. The disease has been recognized, let us say, fairly early after the onset of definite symptoms. There are physical signs on one side. The patient is given absolute rest under good conditions, but the disease spreads. The temperature will not become normal, or rises immediately any exertion is made; the sputum perhaps does not decrease, nor does it become free from tubercle bacilli.

Such a case would cause great anxiety. The physical signs seem to be confined entirely to one side. Two or three months have passed by and still there is activity, which implies spread of the disease. It is now that artificial pneumothorax should be thought of, and the chest should be *x*-rayed to exclude as far as possible unexpected or deep-seated disease on the other side. This radiographic examination is essential. Without it we cannot form an opinion of value. Without it we are only justified in embarking on artificial pneumothorax treatment in exceptional circumstances. There may be much deep-seated disease, which is not and cannot be detected by physical signs. I am not referring to the hilum shadows and striation so often stigmatized as tuberculous by the radiologists, but definite stippling, mottling, and opaque shadows away from the hilum, which are undoubtedly pathological. If after this examination the lung which appeared sound by clinical observation appears sound or nearly so by *x*-ray examination then artificial pneumothorax treatment can be started.

2. The second type is a case where the diagnosis has been missed, or the patient has ignored his symptoms and has not sought medical advice. The disease is advanced. There is cough and much expectoration, wasting, and weakness, perhaps an occasional slight haemoptysis or a night sweat. There are marked physical signs, but almost entirely on one side, perhaps one or more cavities can be detected. In such a case, if there were not marked and definite improvement after a month's complete rest, artificial pneumothorax would be indicated.

3. For the third type I would instance a more chronic case. There may be cavities or much fibrosis, but the disease is still practically unilateral; of this the case described above is an example. If after rest there are still symptoms—fever, sputum, haemoptysis—or the patient can live only a hopelessly restricted life, then artificial pneumothorax is indicated.

Other indications are, in my opinion, as I have expressed elsewhere,[4] the following:

(*a*) In a case of pleural effusion, if there is evidence of active tuberculosis in the lung of the same side, such as the presence of tubercle bacilli in the sputum or a history of haemoptysis, etc., and the other lung is clear or fairly clear, in such a case I should first replace the fluid by oxygen or air, and then maintain the pneumothorax.

(*b*) Recurrent chronic pleural effusion.

(*c*) Certain cases of bronchiectasis.

(*d*) Cases of foreign body in the bronchus that cannot be

removed through the bronchoscope; in this case I feel that it is the only possible treatment that can give relief, short of a very grave surgical operation.

(*e*) Certain cases of foreign body in the lung.

(*f*) For diagnostic purposes for revealing tumours and their attachments by radioscopy and thoracoscopy.

(*g*) In certain cases of abscess of the lung.

(*h*) As a preliminary to operation in certain cases.

(*i*) To control haemoptysis.

Contraindications.

The following contraindicate resort to the production of artificial pneumothorax:

1. Active disease in both lungs. This rule, however, must not be applied too rigidly, for many cases have been successful in which there was some disease on the other side.

2. Early phthisis which is becoming arrested by strict treatment on ordinary lines. Far greater efforts must be made generally towards diagnosing the disease when it is really early. Many cases called early are in reality advanced.

3. Emphysema or asthma are said to be contraindications, and if severe would obviously be so, but I have induced a pneumothorax in an asthmatical subject with no apparent ill effects.

4. Extensive tuberculous disease elsewhere.

5. Reluctance, undue timidity, lack of patience or of confidence on the part of the patient.

In writing thus I have intended to express an opinion, not to lay down the law. It would be beyond the intended scope of this paper to discuss what is early pulmonary tuberculosis, and yet it is a question intimately associated with the problems of pneumothorax treatment.

I take it that all will agree that, given symptoms of toxaemia (lassitude, evening fever, loss of weight) and tubercle bacilli in the sputum, with no physical signs either clinical or radiographical, or only slight signs, the case may be regarded as one of early phthisis, whereas if the signs indicate the involvement of an appreciable amount of lung tissue it can no longer be so regarded.

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[1] Shaw, H. Batty: The Treatment of Consumption by Artificial Pneumothorax, *Practitioner*, February, 1924, p. 105. [2] Riviere, Clive: *The Pneumothorax Treatment of Pulmonary Tuberculosis*, 1917, p. 19. [3] Fishberg, M.: *Pulmonary Tuberculosis*, second edition, p. 694. [4] Chandler, F. G.: Artificial Pneumothorax, *Practitioner*, September, 1923.

LARGE ABSCESS OF LUNG: DRAINAGE BY POSTURE: RECOVERY WITHOUT OPERATION.

BY

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THE following case is interesting because it shows that a large abscess of the lung may disappear completely and fairly rapidly when the patient can discover a posture which enables him to cough up its contents.

A. B., a carter, aged 36, consulted Dr. Fraser of Chasetown in September, 1923, on account of epilepsy, from which he had suffered for many years. Dr. Fraser on that occasion remarked on the extremely septic and offensive state of the patient's teeth, and pointed out the necessity of having them extracted.

Before the man could make any arrangements to follow this advice he was taken suddenly ill, and Dr. Fraser found him suffering from a very acute and extensive pneumonia. On September 24th, the fourth day of the illness, the sputum became dark brown, copious, and very offensive.

On September 27th I saw him in consultation with Dr. Fraser, and agreed that the physical signs pointed to pneumonic consolidation of the right lung complicated by gangrene or abscess. I was unable to strike pus with an exploring needle. The patient's general condition was so bad that I felt there was little hope of recovery. The slightest movement caused great distress and cyanosis, and to move him from his humble home to hospital was out of the question.

I made an autogenous vaccine from pneumococci and streptococci from his sputum; he was given a dose the following day and afterwards at intervals of five days. For the next five weeks he continued to expectorate a quantity

FIG. 1.—On admission to hospital, showing abscess cavity half full of pus.

of putrid purulent sputum; the temperature, which was irregular, seldom exceeded 103° F. He became pale and emaciated, and the fingers became slightly clubbed; on the whole, however, he seemed to have developed some immunity, and the signs of consolidation gradually cleared from the upper lobe; so that on November 7th, seven weeks after the commencement of his illness, he for the first time was considered fit to be moved, and was transferred to Queen's Hospital for *x*-ray examination and possibly operation.

The radiograph (Fig. 1) taken on November 8th showed a cavity half full of pus in the lower half of the right lung. The sputum was offensive but not very abundant.

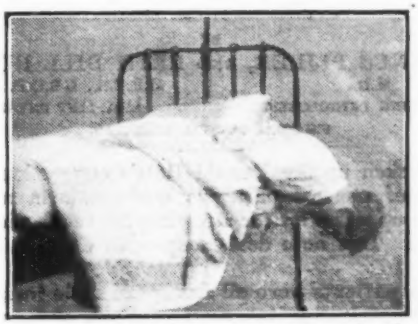

FIG. 2.—Showing the posture which produced the maximum expectoration.

The patient's condition was so poor that I hesitated to submit him to an operation, especially as a needle failed to locate pus near the surface.

I ascertained that in a certain position (Fig. 2) he expectorated more freely, and I hoped to drain his abscess more efficiently by making him assume that position frequently. He was also given a preparation of garlic every four hours and the vaccine was continued.

Thereafter his progress was most satisfactory; the sputum lost its foul odour and became rapidly less in quantity, the pyrexia ceased completely, his appetite improved, and he gained a stone in weight during the next month. Gradually his extremely bad teeth were removed.

A radiograph taken about a month after admission showed a great diminution in the size of the abscess. He was discharged two months after admission, free from all symptoms of abscess and displaying no physical signs beyond some impairment of resonance over the right lower lobe and some diminution of breath sounds in the same region. When next seen, two months later, he was in good health and back at work. All abnormal physical

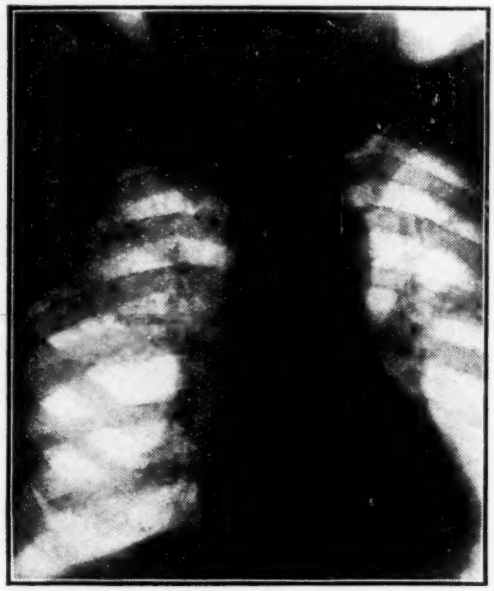

Fig. 3.—Four months after admission—no trace of abscess. Lung fields normal.

signs had then completely disappeared, and an x-ray examination (Fig. 3) failed to show any trace of his former lesion.

My object in publishing this case is to call attention to the striking and immediate benefit which followed the efficient draining of the abscess by the assumption of a suitable posture by the patient; there is nothing new in that.

INCUBATIONAL CHANGES IN THE RED CELL COUNT IN INOCULATED MALARIA.

(Preliminary Note.)

BY

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We have taken up Sir Ronald Ross's suggestion[1] that the treatment of general paralysis with malaria should also serve as an opportunity for studying the incubational period of malaria. This note deals only with changes in the red cell count.

Our nine patients were all European male inmates of the Pretoria Mental Hospital, most of them of long standing, but still in fairly good condition when the work was started. We have used one case of dementia praecox as a control. All patients were treated with one and the same strain of benign tertian malaria.

Method Employed.

Quantities of blood, varying between 0.5 and 10 c.cm., were taken from the vein of a patient with malarial fever, under aseptic precautions, but with no regard to the stage of his fever. This quantity was then immediately injected under the skin of the new patient, divided over as large an area as the needle could reach, and well rubbed in.

A drop of blood from the finger was diluted 200 times with the usual pipette, and counts were made with a Thoma-Zeiss counting chamber. From every pipette two drops were counted separately, and a hundred small squares were counted every time.

In a few cases morning and evening counts were made on the same patient. In the absence of fever there was hardly any discrepancy, but an intervening rigor always lowered the count. In such cases the mean was taken. The routine procedure, however, was one daily count performed at approximately identical hours for every patient. In every case counting was started a few days before the injection so as to obtain the average count.

Results.

Sir Ronald Ross[1] mentioned that S. Ben-Harel saw the red cells diminish, in canaries inoculated with Proteosoma, as early as the day after inoculation, and this decline was progressive day after day, until from 0.5 to 2 million had disappeared from the original normal count of 4.5 to 5 million. We have found the exact opposite, as shown in the table. In it we have included other details about our patients which might be thought to have a bearing on the phenomena observed, although the connexion is none too obvious.

Table.

Case Number.	Dose Injected.	Incubation Period (days).	Average Cell Count before Injection (millions per c.mm.).	Highest Count Reached (millions per c.mm.).	Lowest Count Reached (millions per c.mm.).	Malaria in Patient's History.	Duration of Fever (days).	Fever stopped by—
	c.cm.							
1	3	12	4.7	6.4	3.1	?	33	Itself.
2	2	9	4.7	6.7	3.2	?	30	Neosalvarsan.
3	4	9	5.6	6.7	3.2	?	17	Neosalvarsan.
4	5	6	5.4	6.25	3.5	?	19	Neosalvarsan.
5	1	12	4.8	6.2	2.9	had	58	Neosalvarsan.
6	0.5	17	4.7	6.5	3.65	?	47	Neosalvarsan.
7	1.5	18	5.9	6.4	5.2	had	15	Itself.
8	2	9	6.8	7.9	6.5	?	12	Death.
9	10	14	5.9	6.8	5.3	had	5	Itself.

At the altitude of Pretoria a red blood count of nearly 6 million may be regarded as normal. From the table it is seen that many of our patients were anaemic before the injection of malarial blood. The high count reached by all of them after the injection is all the more remarkable. The very low count following on this is the usual malarial anaemia. But neither the rise nor the fall seems to stand in any fixed relation to the other features: to previous malarial history, to the dose of blood injected, and to whether we used neosalvarsan to stop the fever or it ceased of itself.

From our observations it is clear that an injection of malarial blood is followed by a rapid and marked increase in the number of red cells. This increase is followed by a decrease, and this decrease coincides more or less with the outbreak of fever, or possibly with the appearance of malaria parasites in the peripheral blood stream. Since all the cases injected with malarial blood showed this increase in cell count, and the one case injected with malaria-free blood showed no change at all, we may safely hold the malaria parasites responsible for the increase. This view is further supported by an observation in another patient who had received an injection of malarial blood but for some reason never got as far as a rigor. He just showed an irregular slight rise of temperature for a couple of days, after which the fever died out entirely. In this case a rise in the number of red cells was recorded from 5.04 to 5.78 million.

Conclusions.

A subcutaneous injection of from 0.5 to 10 c.cm. of blood containing benign malarial parasites is quickly followed by a rise in the red cell count amounting to somewhere between 10 and 30 per cent. This rise lasts several days, with minor daily variations, and is followed by a fall, which constitutes the malaria anaemia.

As an injection of malarial blood cannot very well lengthen the life of red blood corpuscles, the rise can only be explained

as an increase in production of red blood cells. Normal blood has no such effect.

An injection of malarial blood is a direct stimulus for the red bone marrow towards increased activity. This stimulus might be applied for therapeutical purposes (forms of anaemia, especially chlorosis). The outbreak of fever can always be prevented by an injection of neosalvarsan as soon as the increase in red cells is well established. The whole process could then be repeated.

We wish to thank the public health authorities of Natal for assisting us in obtaining the strain of malaria; Dr. Griffin of Verulam for his very kind and courteous co-operation in this matter; Dr. J. T. Dunston, Commissioner for Mental Hygiene of the Union of South Africa, for giving us every assistance whilst making these investigations; and Dr. Swift, Acting Commissioner for Mental Hygiene, for his kind permission to publish this note.*

REFERENCE.

[1] Ronald Ross, BRITISH MEDICAL JOURNAL, January 19th, 1924.

SMALL-POX: AN UNRECOGNIZED OUTBREAK.

BY

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THE following history illustrates the behaviour of unrecognized small-pox in a community where the only control was the previous partial vaccination of the contacts and the fact that it occurred in institutions under discipline and observation. The facts are related as they came to my knowledge in order better to convey the method by which the outbreak was discovered.

On Saturday, February 16th, I was asked by the medical attendant to see a girl, resident in an institution for female adolescents which is supported partly by voluntary contributions and partly by laundry work. I gave it as my opinion that the patient was suffering from chicken-pox, and very much relieved the administration by offering to remove the case to the Preston Isolation Hospital. This offer was accepted, and the patient was removed to an isolation ward in the diphtheria block at the isolation hospital.

During the week-end I became suspicious of my original diagnosis, and asked Dr. Fisher of the Lancashire County Council staff to see the case. He diagnosed the case as one of small-pox, the points being:

1. The rash was preceded by a definite illness on February 8th—headache, pains in the back, and sickness.
2. The rash first appeared on the face and forehead on February 13th.
3. When the rash was fully developed (February 18th) it tended to affect the extremities rather than the centre of the body, and the exposed rather than protected surfaces. Thus the back of the hand and the arm, the front of the leg, and the forehead were affected, whereas the abdomen, the groin, and the front of the neck were free.
4. The rash appeared in one crop upon the face and appeared successively at different sites lower down the body, affecting the feet last; thus the rash on the face was much older than that upon the feet, and all the spots upon the feet were of the same age.
5. The spots were circular and deeply seated in the skin.
6. The vaccinal condition was definitely negative.
7. Revaccination was not successful.

The diagnosis was agreed to by my assistant and the original medical attendant of the case and by the medical officer of the small-pox hospital to which the patient was removed on that day. She made a good recovery, but was somewhat scarred. There were no subsequent cases.

The usual inquiries as to the source of infection revealed the fact that the laundry was regularly receiving parcels of laundry work from an adjoining institution for boys. This home is managed by a religious brotherhood and receives fifty resident boys on behalf of the Home Office. At this home on December 25th there occurred an illness in one of the boys. A rash appeared on December 29th. I saw the case on December 31st in consultation with the medical officer and diagnosed the illness as chicken-pox. Bearing this case in mind I at once inquired as to the subsequent history, and found that fourteen additional cases had occurred, as shown in the table.

Case No.	Date of Onset.	Vaccinal Condition.	Case No.	Date of Onset.	Vaccinal Condition.
1	Dec. 25th	Nil	9	Jan. 12th	4 scars
2	Jan. 8th	4 scars	10	" "	4 scars
3	" "	4 scars	11	Jan. 13th	Nil
4	Jan. 11th	Nil	12	" "	Nil
5	" "	1 scar	13	Jan. 14th	Nil
6	" "	Nil	14	Jan. 18th	Nil
7	" "	1 scar	15	" "	Nil
8	Jan. 12th	3 scars			

These lads all suffered from an illness similar to that of the first boy. There was, I am assured, a prodromal illness, nausea, and backache, and in one or two instances sickness. The rash appeared first on the face. As the cases occurred they were removed to an empty dormitory and looked after by the resident nurse. At the date of my visit (February 19th) all the boys were well and mixing freely with the other lads. They presented scars on the shins, knees, and feet, and the boys affected later in the outbreak showed characteristic "seeds" in the soles of the feet. Individual scars were also indicative.

An examination of the remaining boys showed that with one exception all had been vaccinated either in infancy or subsequently. Also that on February 1st and February 15th the medical officer of the institution had arranged for the vaccination of the eight among the above who had not been previously vaccinated. In seven of the eight the attempt to vaccinate was unsuccessful both on February 1st and February 15th. In one case, which in its attack had only a single spot and no scars, vaccination was successful. The seven of the fifteen cases in the table were unsuccessfully revaccinated on February 20th.

In view of the fact that the usual experience of public vaccination, using Government lymph, is 99 per cent. case success and a slightly lower figure for insertion success, the unsuccessful attempt to vaccinate these unvaccinated boys was the subject of correspondence between the public vaccinator and the Government lymph establishment, to which my attention was called by the Ministry of Health early in March.

Summarizing, I found that an epidemic illness resembling small-pox had occurred, and that it had (1) infected all but one of those eight boys not protected by previous vaccination; (2) infected seven boys protected by previous vaccination; (3) failed to infect forty-nine boys and staff protected by previous vaccination; (4) rendered those infected immune to vaccination.

On January 28th the nurse who had attended to the sick boys took her uniform to the laundry at the girls' institution. The case in the latter home occurred on February 8th—eleven days later.

Several interesting points arise. The attack rate was as follows:

Institution.	Period of Exposure.	Previously Vaccinated.	No. of Cases.	Percentage.	Unvaccinated.	No. of Cases.	Percentage.
Boys' Home ...	Unlimited	56	7	12.5	9	8	88.8
Girls' Home...	8 days	14	—	—	6	1	16.6
Isolation Hospital	2½ days	48	—	—	9	—	—

The total contacts at the three institutions numbered 126, of whom 111 had been previously vaccinated, and 15 were unvaccinated. All, with 10 exceptions (recent army vaccinations 8, refusals 2), were submitted to vaccination in connexion with the small-pox outbreak.

The case success in those previously vaccinated was 102 : 22, or 21.5 per cent.

In the 14 who had never been vaccinated it succeeded in all but one case.

* Detailed charts sent with this paper have been omitted owing to want of space.

An examination of the dates of attack in the boys' home shows that Case 1 infected the remaining cases, and that the removal of the subsequent cases to a separate dormitory without any special precautions was sufficient to check any further spread of the disease. Although the unprotected were with one exception attacked, yet they were not, as one might expect, attacked first. Cases 7, 8, 9, and 10, who were previously vaccinated, became infected before Cases 11, 12, 13, 14, and 15, who were not. All the cases were of the mild type, and there was no practical difference in severity between the cases arising among the protected and the unprotected. In the girls' home secondary cases were looked for with some assurance. Their immunity was perhaps due to the fact that each girl had a separate bedroom. The boys' home is planned on the dormitory system.

THE LIFE-HISTORY OF A CASE OF MYXOEDEMA.

BY

HUGH M. RAVEN, M.R.C.S., L.R.C.P.,

BROADSTAIRS.

This case of myxoedema was reported in the Journals of January 6th, 1894, and July 31st, 1897, by my father, and is, I think, an unusually long record of a patient continually under observation.

Mrs. S. was born in May, 1829, therefore when she died in January, 1924, she was over 94 years of age. The

Fig. 1.—Original condition, aged 41.

Fig. 2.—After five weeks' treatment

symptoms of myxoedema began in about 1870, and were untreated for twenty years, by which time she was bedridden and imbecile, and her appearance is to be seen in photograph 1. After five weeks' treatment with thyroid

Fig. 3.—After fifteen months' treatment.

Fig. 4.—At age 94, after over thirty years' treatment.

tablets her mental condition had much improved, and the condition of the skin generally was clearing up (photograph 2). After fifteen months' treatment she was practically normal again (photograph 3); the regrowth of the hair is to be noted. Within a year or two she was well enough to nurse her daughter through an attack of typhoid, and lived to a ripe old age—happy, healthy, and mentally active.

It was noted during the early years after her recovery that she appeared mentally younger than a woman of her age, and it was suggested that the twenty years of myxoedema had given her twenty years of rest, from which she benefited in the long run.

As far as my information tells me, she had five grains of extract of thyroid twice a week at the commencement of the treatment, and after recovery she had one grain twice a day for the rest of her life. I have little doubt that during all these years the thyroid was not always taken regularly, but there was never any recurrence of the symptoms. The thyroid gland remained impalpable.

The fourth photograph shows her shortly before her death, which was caused by bronchitis.

ABSCESS OF FRONTAL LOBE: OPERATION: RECOVERY.

BY

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AND

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GRIMSBY.

The following case appears to be of interest on account of the unusual path of infection—namely, from the frontal sinus—and as confirming certain mental symptoms in lesions of the frontal lobe.

G. R., aged 23, dock fireman, was first seen by A. H. R. on October 27th, 1923. He complained of pain in the lower jaw on the left side and headache which had lasted for six days. Two days previously he had vomited once.

There were found oedema of the left upper and lower eyelids, and tenderness over the left maxillary region. There was also an area of extreme hyperalgesia of 1 inch radius situated 2 inches to the left of the mid-line, and 2½ inches above the orbital ridge. The pupils were equal and reacted to light. The fundi appeared normal on ophthalmoscopic examination. Transillumination tests showed dullness in the left antrum of Highmore, and the left frontal sinus also appeared relatively dull. The temperature was 103° F. and the pulse 50.

In the course of a few days these symptoms abated, but on November 7th the oedema of the eyelids returned and the headache increased. The temperature varied from 99.5° to 101° F., and the pulse from 66 to 90.

Operations.

On November 9th he was removed to the Grimsby Union Infirmary, and the "wash-out" test having given a positive result on the left side, the left antrum of Highmore was drained through the canine fossa, a large quantity of fluid pus being liberated. On the following day (November 10th) the left frontal sinus was opened by the direct route. It was found to contain glairy inspissated pus. No backward track could be detected. Both operations were performed by S. W. S.

The temperature again became normal and the patient felt much better generally, so that it at first seemed that the whole condition might have been due to the sinus disease only. During this period the temperature never rose above 99° F., and the pulse varied from 62 to 100.

Mental Disturbance: Third Operation.

On November 19th the headache once again became severe, the left eyelids oedematous, and the left pupil slightly dilated. The patient refused to allow his dressings to be touched, or his mouth to be cleansed. Though up to this point his behaviour had been exemplary, he now refused all food and became violent and abusive towards his nurses. It was difficult to obtain answers to questions, and these were given slowly, after an interval of a few seconds. He became very weak, and nutrient saline were commenced.

On November 27th the fundi were again examined and found normal. Both handgrips were very weak, but that of the right hand weaker than the left. In spite of his now semi-comatose condition pressure on the scalp in the region defined above caused the patient to wince. On this date the pulse was 48.

On November 28th a third operation was performed by A. H. R. A vertical incision was made 3/4 inch to the left of the middle line, extending for 2½ inches upwards from the orbital ridge. The skull was trephined above and to the left of the frontal sinus. The trephine used was 1 inch in diameter. The dura mater bulged into the opening and there was no pulsation. At a point corresponding to the upper limit of the left frontal sinus there was a marked granulated area. This was believed to represent the track of the causal organisms. The membranes and cortex were incised and pus was found at a depth of 3/4 inch. Five ounces of pus were collected, the patient being turned face downwards to facilitate

its escape. A gauze drain was left in the sinus which measured 2½ inches in length.

Next day the patient's disposition was found to be entirely different. He was again quite tractable and answered questions with less difficulty. Twelve days after the operation he had two epileptiform seizures, and for a fortnight he had several similar attacks. On January 6th, 1924, all packing was removed, and a fortnight later the wound was allowed to close completely. The patient was discharged well on February 6th, having been free from symptoms for six weeks.

Mr. D. S. Campbell, M.B., who was associated with us in the treatment of the case, undertook a bacteriological examination of the pus, and reported that it showed a mixed infection, micrococci predominating with numerous groups of staphylococci.

As is usual in such cases, the patient is unable to recall any of the events of his illness prior to the relief of the intracranial pressure—for instance, he does not remember ever having been visited at home or having been removed to hospital.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

PUERPERAL FEVER AND ATROPHIC RHINITIS.

IN parts of June and July, 1923, a number of patients at the Portsmouth Municipal Maternity Hospital exhibited temperatures above normal without any obvious cause, without physical signs, and without symptoms, apart from mild malaise, which was present in a few instances. While investigations were still proceeding complaints were made regarding a faint unpleasant odour alleged to be attendant upon a certain recently enrolled pupil midwife, and she was examined with a view to ascertaining its cause. It was just previous to this that it had been noted that the patients under observation had all been attended in some way or other by the same pupil midwife. Advanced atrophic rhinitis with extensive crust formation was found, and she was requested to return home and place herself under treatment. This she did, and the temperatures referred to all became normal almost at once.

Nearly three months later she submitted a medical certificate, and was allowed to return. Almost immediately, however, the temperatures of those patients with whom she came into contact began to rise, but more markedly than before. She submitted to re-examination, and the condition was found to be very little changed from that noted at the previous inspection. A culture taken from the nose showed haemolytic streptococci. The opinion of Mr. C. A. Scott Ridout, M.S., F.R.C.S., was obtained, and on his advice she again retired for treatment. As before, the temperatures immediately subsided.

TABLE I.—*Temperatures June 12th to July 9th.*

	Temperatures.	Duration.
Case 1	99°	First to fifth evenings.
Case 2	99°	Fifth to tenth evenings.
Case 3	99°	Three evenings.
Case 4	99.6°	Evenings of the first week.
Case 5	99°	Evenings of the first week.
Case 6	99°	Every evening.
,, ...	100°	Eleventh evening.

TABLE II.—*Temperatures October 8th to 23rd.*

	Temperatures.	Duration.
Case 1	99°-100.6°	First to fifth evenings.
Case 2	99°	Fifth to seventh evenings.
Case 3	100°	Evenings of the first week.
,, ...	101.8°	Fourth evening.
Case 4	99°-100°	First to tenth evenings.
,, ...	103.2°	Tenth evening.

It will be noted that nearly all of the cases in Table II should have been notified. It should also be mentioned that of all these cases, in both tables, this pupil midwife was present at the delivery of three only, and even then she was too junior to do more than look on.

Since the temperatures subsided on the removal of the "carrier" from attendance, it is justifiable to assume that the cause of the rises was not itself bacterial, though almost certainly bacterial in origin. No theory is submitted as to the mechanism by which the reaction was produced, but it may be emphasized that the carrier suffered from a *chronic* infection.

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TREATMENT OF SPRUE BY CALCIUM AND PARATHYROID.

THE following short notes on two cases of sprue treated by calcium lactate and parathyroid extract are submitted in reference to the article by Dr. H. H. Scott in the BRITISH MEDICAL JOURNAL of August 23rd (p. 305).

CASE I.

A. B., male, aged 22, single, spent five years on the Indian frontier, with six months' home leave in 1921. He came home in 1923. He had had hill diarrhoea.

In October, 1923, the symptoms of sprue first began: copious early morning stools, distension of abdomen, and sore tongue. He was seen in consultation on March 5th, 1924, when there was an icteric tinge on the conjunctivae, an atrophic tongue, and a tumid abdomen with a palpable liver. The stools were characteristic of sprue. No abnormality was discovered in any other system. The patient was ill and very irritable. He was put on a suitable diet and given parathyroid extract (Armour) 1/10 grain twice a day with calcium lactate. Seen again on March 27th, there was no soreness of the tongue; the stools (one daily) were pale, not frothy nor abnormally large. Slight icterus of the conjunctivae was still present, but the colour and the mental outlook were good. On June 13th the parathyroid dosage was cut down to once daily. The general condition was extremely satisfactory and there was no recurrence of untoward symptoms. At the present time he can play golf and lead an active normal existence, both mentally and physically. He is having no treatment by drugs, and can digest any food, but he has been advised still to exercise care in his diet.

CASE II.

C. D., female, aged 45, married, no children, went to India in 1910, had several short holidays in England and a longer one from May, 1914, till November, 1916. She returned home finally in 1921. She had a sore tongue before leaving India in 1921, which healed on the voyage home. She had been in fair health till six months ago, when she was subjected to much worry; since then she has had a sore tongue, flatulence, and copious pale, offensive, frothy stools. She gave a history of retrosternal burning on taking food and of sudden vomiting without nausea at night. When first seen, on June 14th, 1924, she was very ill and confined to bed. She was extremely emaciated, with a scaly, earthy skin. The characteristic sprue tongue was present with denuded epithelium and ulceration. The abdomen was tumid, but there were no other abnormal physical signs in chest or abdomen and no disease of the central nervous system. The discs were normal but pale. She was put on two-hourly feeds of milk, peptonized milk, and whey and meat juice. Parathyroid extract (Armour) 1/20 grain was given twice a day with calcium lactate. The diet was gradually increased as the symptoms subsided. When last seen, on August 20th, the stools and tongue were normal, there was no sickness, the weight had increased, the colour was good, and she felt well. The diet was practically normal, but fats were still restricted. The parathyroid extract was stopped.

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EXPULSION OF WHOLE PLACENTA PRAEVIA.

THE following case must be of great rarity, and seems of sufficient interest to record:

On May 15th I was called to a confinement at 5 a.m. The patient was a multipara (ten previous pregnancies), and there was a history of several miscarriages and premature births. On arrival I was surprised to see the entire placenta lying on the bed, and naturally concluded that the child was born, but on inquiry I found that this was not the case. There was no haemorrhage.

I made an examination and found there was a transverse lie with impaction of the shoulder. Chloroform was administered, version performed, and the child (of course dead) was delivered without any further trouble. The puerperium was uneventful.

I think there is no doubt that the condition had been one of central placenta praevia, and that as labour had progressed the attachments of the placenta had been loosened and it had been expelled whole.

I learned that there had been a sudden gush of blood when the "after-birth" was born, but this had quickly subsided and there had been no further haemorrhage.

To my mind, the remarkable features of the case are: first, that expulsion of the entire placenta could take place without its being ruptured; and secondly, the absence of serious haemorrhage throughout the case.

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Reviews.

CHRONIC EPIDEMIC ENCEPHALITIS LETHARGICA.

It is now some six years since lethargic encephalitis began to attract the attention of the medical profession in England. During March and April, 1918, a large number of cases of an obscure disease were reported in England. Owing to the frequent occurrence of ocular paralysis it was at first suggested that it might be botulism, and later that it was the cerebral form of acute poliomyelitis (Heine-Medin disease). But it was soon recognized that it corresponded in its clinical symptoms, signs, and pathology with a disease of which three cases described by von Economo and von Wiesner had occurred in Vienna in 1917. The evidence now available seems to establish that it is not a new disease, for epidemics in which lethargy was a characteristic symptom have occurred in various places in Europe during the last three centuries.

Recently a serious recrudescence has been noted in various parts of this country. The cases notified during the first five months of this year numbered 2,473, whereas the annual average for the previous four years was 839. Consequently when Professor Wimmer of Copenhagen asked me to write a preface to his work on *Chronic Epidemic Encephalitis*[1] I replied that I would consider it an honour to do so. Having read the book I felt it was a work which would be of service to the medical profession in England, for it deals with the subject in a masterly manner.

Professor Wimmer produces evidence that a large proportion of cases of encephalitis lethargica—not only the severe ones, but even the mild ambulatory cases—may develop within a few months or a couple of years signs of chronic progressive disorder of the central nervous system. The Ministry of Health has issued several important reports since 1918. Reference may in particular be made to the Annual Report of the Chief Medical Officer of the Ministry for 1922, and to the important memorandum (British Medical Journal, June 14th, 1924, p. 1062) issued this year by the Ministry, in which these late effects are considered to be sequelae. Professor Wimmer and many Continental authorities are of opinion that the encephalitis may remain active for years as an intermittent or recurrent process, but that it is in by far the majority of cases progressive. The symptoms are not sequelae, but due to the active virus. Professor Wimmer quotes Netter's statement to the effect that the encephalitis may be continued for several months, even for several years. The virus, according to Netter, can continue to live in the nervous centres like that of syphilis.

The memorandum above referred to states that in the second quarter of 1924 there were 1,715 cases of lethargic encephalitis in England and Wales. Unfortunately, publications which are issued by the Stationery Office do not seem to obtain the wide circulation documents of so much importance deserve, and Professor Wimmer does not allude to the report in his monograph. It is really astonishing to find how seldom reports published by the Stationery Office obtain recognition in foreign countries. Only the other day I was asked by an eminent scientist, who gave most valuable evidence before the Royal Commission on Venereal Disease, where he could obtain a report of the findings of the Commission and the evidence. *The Action of Alcohol on the Human Organism* is another example of a valuable publication buried by the Stationery Office.

Professor Wimmer deals almost exclusively with chronic epidemic encephalitis, although in a short introduction the subject of encephalitis generally is considered. He gives an account of the symptomatology and a description of the psychotic and general nervous disturbances. Recently the Board of Control issued an inquiry to superintendents of mental hospitals relating to patients admitted with mental symptoms occasioned by this disease. Although a considerable number of cases had occurred in Birmingham and district, and the names of the cases noted were sent to the superintendents of Rubery Hill and Hollymoor, yet only one of the patients whose names had been notified as suffering from this disease could be identified with patients admitted to these institutions. Professor Wimmer is of opinion that psychic disturbances are likely to be found in children and young adults, who are very liable to exhibit changes of character and morals in consequence of this disease. Of the 271 cases in which sequelae were noted in the Ministry of Health's report (Report No. 11) quite a number exhibited psychic disturbances, and in the Ministry's memorandum it is pointed out that

> "the after-effects in all probability are dependent upon lesions of the cortex of the brain. Irritability, maniacal outbursts, hebetude, complete change in moral character and self-control, sexual perversions, lying and theft, may appear for the first time in the conduct of the victims of encephalitis lethargica, as well as grosser mental defects, including even homicidal mania, and other disorders of conduct which result in the patient's transference to a mental institution. These symptoms are of all grades of severity, and may be associated with nervous lesions."

Dr. Wimmer's experience coincides with this; he states that of twenty-five children who had been treated in 1918-22 in the hospital for epidemic diseases in Copenhagen, eleven died, two could not be traced, and the remaining twelve all displayed to a more or less pronounced degree psychic disturbances affecting especially moral character. We must therefore look for these children in children's courts and institutions for mental defectives.

Professor Wimmer divides the chronic forms of encephalitis into three main groups: chronic encephalitic Parkinsonianism, intermediary types, and extrapyramidal hyperkinesia. He discusses these types very fully, and with copious reference to the experience of other authorities. His own cases are fully described and illustrated by photographs and photomicrographs. The differential diagnosis is discussed in a very full and comprehensive manner, and illustrated by cases. Dr. Wimmer notes that an extremely persistent and painful symptom met with in chronic encephalitis, in children as well as in adults, is insomnia or dyssomnia. He attaches some importance to the examination of the spinal fluid of cases of chronic encephalitis, especially as a means of distinguishing them from pure neurasthenic or hysterical conditions, for the functional neurosis may, of course, be combined with the organic affection. He discusses the value of an increase of sugar in the cerebro-spinal fluid, although in eight chronic cases the results were quite negative. "Theoretically, an increase of the sugar content in the blood and cerebro-spinal fluid should be very interesting, seeing that it might be due to a lesion of the central sympathetic centres in the hypothalamic region." He relates a number of experiments carried out in collaboration with Dr. Jensen, but states the results tentatively; I am, indeed, inclined to think that the evidence of successful inoculation of rabbits is at present insufficient. The results of an exhaustive histological examination of the brain in non-experimented domestic rabbits at the Rockefeller Institute, in which lesions were found similar to those observed in animals that had been inoculated, tend to throw doubt upon the morbid changes seen in rabbits' brains and attributed to the inoculation. Professor Wimmer does not refer to the important experimental investigations by Mackintosh, for the reason previously stated, but he mentions those of Levaditi and Doerr, who by inoculation of virus obtained from human cases provoked in rabbits and monkeys brain lesions indistinguishable from those characteristic of lethargic encephalitis.

The histological changes in the cases which came under his own observation and died in hospital are fully described and illustrated by the author. The morbid changes are found especially to involve the basal ganglia and the mesencephalon, but any part of the central nervous system may be the seat of the inflammatory process. It resembles poliomyelitis in its epidemiology, low degree of infectivity, and prodromal symptoms, but in one important respect it differs—namely, only rarely is the spinal cord affected.

It is difficult to understand why the virus should select the mesencephalon, unless it be due to some special relation between the lymphatics that pass up along the vertebral arteries to supply the base of the brain and the localization of the virus in the naso-pharynx. A study of the course

[1] *Chronic Epidemic Encephalitis.* By August Wimmer, M.D. With Preface by Sir F. W. Mott, K.B.E., LL.D.Edin., M.D., F.R.C.P.Lond., F.R.S. London: William Heinemann (Medical Books), Ltd. 1924. (Sup. roy. 8vo, pp. 335; 85 figures, 1 plate. 21s. net.)

and relations of the lymphatics of the naso-pharynx and the brain would be of interest. It seems that the perivascular lymphatics of the short terminal perforating arteries that spring from the basilar artery and the circle of Willis are special seats of the activity of the virus, causing a perivascular lymphocyte infiltration and congestion of the vessels, so that to the naked eye an appearance of punctiform haemorrhages in the brain stem is seen, and is almost pathognomonic of the disease. A similar perivascular infiltration is observed in the encephalitis of sleeping sickness due to the trypanosome invasion of the central nervous system. So far no organism has been found in lethargic encephalitis; it is probably a filter-passer.

Unlike syphilitic and tuberculous brain affections, there is little or no meningitis. The absence of affection of the meninges probably accounts for the relatively fewer cells in the cerebro-spinal fluid in lethargic encephalitis.

The pathogenesis of the disease is dealt with in a very interesting chapter, in which the author refers to the opinions expressed by a number of authorities. The chapter on patho-physiological mechanisms is very instructive, as it helps to explain the various characteristic symptoms—for example, the Parkinsonian syndrome, the choreiform and athetoid movements, and the myoclonias—which occur in the chronic form of lethargic encephalitis. Very extensive references are made to German and French authors, and the book, both on account of the experience and knowledge of the disease displayed by the author and his familiarity with the important contributions to the subject by authorities on the European continent, should ensure its wide circulation among English-speaking people. It is written in excellent English, and admirably illustrated by numbers of photographs and photomicrographs.

FREDERICK W. MOTT.

POPULAR WORKS ON DIABETES.

IT is well known that the American public is more interested in health and the prevention of disease than is the British, and one result of this interest is the existence in America of a large amount of good popular health literature, written by responsible persons. This fact is illustrated by the appearance on our table for review of no fewer than five short books on diabetes published recently in the United States, written not only for the use of physicians, but also for the instruction of nurses and patients.

Diabetes is a disease which has caught the imagination of the American public. Its incidence has increased considerably in recent years; it attacks the well-to-do more frequently than the poor—the popular vices of overeating and lack of exercise are believed to be important contributory causes; and finally, the discovery of insulin was the most dramatic advance made by medicine in this century. These facts, together with the existence of a diabetic club in America numbering a million members, have apparently created an extensive demand for popular literature on diabetes.

The third edition of *A Diabetic Manual for the Mutual Use of Doctor and Patient*,[2] by Dr. ELLIOTT P. JOSLIN, Clinical Professor of Medicine at Harvard Medical School, is a volume of just over 200 pages, which can be recommended with confidence to both of the classes for which it is intended. It is written in a remarkably pleasant and interesting style, and presents all the salient facts about the treatment of diabetes with clearness and precision. Full instructions as to the selection of diets are given, the fundamental principles of food values are explained, and a large number of diabetic recipes and menus are given. The main principles regarding the administration of insulin and the dose to be used are also outlined. One word of caution is needed regarding the use in this country of the tables given in the book: the American pint contains only sixteen fluid ounces, and therefore is only four-fifths of the English pint. This difference might lead to error, although the chances of such an error occurring are reduced because most of the tables are given in the metric system. This caution also applies to the other four books under review.

As regards prevention of diabetes, Professor Joslin emphasizes the necessity of moderate eating and regular exercise. He points out that the onset of diabetes is closely associated with obesity, and considers that "no other condition rivals obesity in importance as a forerunner of diabetes." Various pieces of evidence in support of this thesis are quoted, but perhaps the most significant is that the mortality from diabetes fell about 50 per cent. in Germany during the later years of the war, when undernutrition became prevalent.

Management of Diabetes,[3] by Dr. GEORGE A. HARROP, Jr., is a manual for physicians and nurses based upon a course of instruction given at the Presbyterian Hospital, New York. The generosity of John D. Rockefeller made it possible to demonstrate the use of insulin to nearly six hundred physicians at this hospital, and the book under review was prepared as a manual of reference for the use of the physicians after completion of the course. The manual contains less than 200 pages, but gives in simple and concise language full instructions as to the treatment of diabetics by dietary management and insulin. The book is intended primarily for physicians and nurses, but it is written so clearly and simply that much of it could be read with profit by intelligent patients.

The second edition of *Diabetes: A Handbook for Physicians and their Patients*,[4] by Dr. PHILIP HOROWITZ, is another short book containing about 200 pages and covering much the same ground as the two others already mentioned. It gives all the essential facts regarding diabetic treatment, but we did not find it quite so easy to read as the others, and we doubt whether patients would find it as clear as the books previously mentioned.

Diabetes: Its Treatment by Insulin and Diet,[5] by Dr. ORLANDO H. PETTY, Professor of Diseases of Metabolism of the Graduate School of Medicine, University of Pennsylvania, is a volume of 100 pages, and is written with the idea of assisting the physician by giving his patient a working knowledge of the treatment of diabetes. The author explains in very simple and clear language the nature of diabetes, and the elementary principles of food composition and of the selection of a diabetic diet. He gives also a short account of how to test urine for sugar and how to administer insulin.

Food for the Diabetic,[6] by Mrs. M. P. HUDDLESON, described as a consulting dietitian, has an introduction by Dr. N. B. Foster, Assistant Professor of Medicine at Cornell University Medical School; it gives full directions to the diabetic on how to plan a menu and how to measure out and cook the food. The volume only contains 75 pages, but gives the diabetic just the information needed for the selection and preparation of meals.

Taken as a whole, these five volumes represent an interesting attempt to get health knowledge of a particular type across from the profession to the public, and it is interesting to note that distinguished physicians do not think that it is beneath their dignity to do such work. This attitude is not confined to the special instance of diabetes, for there is in existence in America a mass of popular health literature, written by authoritative persons, which has little counterpart in this country.

Such literature must be of great service in helping to create an informed public opinion concerning the science of medicine, and thus combating the quacks and various "anti" faddists that are the natural opponents of science in general and of medical science in particular. Dr. Joslin, for example, takes particular care to emphasize in his book the personal obligation of every diabetic to scientific experiments conducted on living animals.

[2] *A Diabetic Manual for the Mutual Use of Doctor and Patient.* By Elliott P. Joslin, M.D. Third edition. Philadelphia and New York: Lea and Febiger. 1924. (Post 8vo, pp. viii + 211; 18 figures, 1 coloured plate. 2 dollars.)

[3] *Management of Diabetes: Treatment by Dietary Regulation and the Use of Insulin.* A Manual for Physicians and Nurses based on the Course of Instruction given at the Presbyterian Hospital, New York. By George A. Harrop, Jr., M.D. New York: Paul B. Hoeber, Inc. 1924. (5½ × 8, pp. xiii + 176; 2 figures. 2 dollars net.)

[4] *Diabetes: A Handbook for Physicians and their Patients.* By Philip Horowitz, M.D. Second edition. New York: Paul B. Hoeber, Inc. 1924. (Cr. 8vo, pp. vii + 219; 34 figures. 2 dollars net.)

[5] *Diabetes: Its Treatment by Insulin and Diet.* By Orlando H. Petty, B.S., A.M., M.D., F.A.C.P. Philadelphia: F. A. Davis Company. 1924. (Cr. 8vo, pp. 109; 8 figures, 1 coloured plate. 1.50 dollars net.)

[6] *Food for the Diabetic: What to Eat and how to Calculate it with Common Household Measures.* By Mary P. Huddleson. With an Introduction by Nellis B. Foster, M.D. New York: The Macmillan Company. 1923. (Cr. 8vo, pp. xiii + 75; 2 figures. 1.25 dollars.)

PLANT ALKALOIDS.

THE appearance of the second edition of *The Plant Alkaloids*,[7] by Dr. T. A. HENRY, the director of the Wellcome Chemical Research Laboratories, is an event of importance for all interested in this branch of chemistry. The first edition, which appeared in 1914, is the standard English work on this subject; since that date a large amount of progress has been made, and hence the new edition has been largely rewritten.

The chemistry of the alkaloids is a complex and difficult branch of organic chemistry; there is indeed no clear definition of the term "alkaloid," and no one has yet devised a satisfactory classification for these substances. The author defines the term "alkaloid" "as meaning a relatively complex basic substance occurring naturally and possessing some physiological action," and for the purpose of the textbook he divides alkaloids into nine groups, according to the nature of their nucleus, with a tenth group for alkaloids of unknown constitution; this arrangement, he says, is "convenient but unnatural."

Many hundreds of alkaloids are described, and in the case of the more important the following points are dealt with: natural sources, sources of commercial supply, chemical and physical properties, tests for identification, structural formulae, methods of synthesis, methods of preparing alkaloidal derivatives, and pharmacological action. From this summary the wide range of the book may be gathered. It is primarily a work of reference for organic chemists and for those dealing with alkaloids in commerce.

Much of the information given is of a kind that would be very difficult to find elsewhere—for example, the author describes the commercial sources of many of the most important alkaloids. The cocaine traffic has roused so much public interest of late that it is interesting to note what is said about the supply of this drug. There are four chief sources—Bolivia, Peru, Ceylon, and Java. The leaves of the first three contain cocaine as their chief alkaloid; the Java leaf contains chiefly cinnamylcocaine, but little or no cocaine. The alkaloids from the Java leaves require chemical treatment to convert them into cocaine; the process is carried out chiefly in Germany. This does not seem to exhaust the possible source of supply of cocaine, for the genus Erythroxylon, which yields cocaine alkaloids, comprises about eighty species, which are indigenous in four continents, and of all these only four or five have been completely examined as regards alkaloidal contents. The commercial supply comes from at least three distinct species. These facts indicate that the suggested control of the cocaine trade by means of the restriction of the production of coca leaves may prove a good deal more difficult than would appear at first sight.

The author has devoted especial attention in the new edition to the evidence available correlating the chemical constitution of alkaloids with their pharmacological action, but he is forced to conclude that in spite of the large amount of work that has been done on this subject the results are very meagre. The work done on the mydriatic and local anaesthetic properties of the tropëines (cocaine, atropine, and their allies) is described at some length. This group has been studied with more care than almost any other, but the general conclusion is disappointing—"no generalization as to the relation between the mydriatic action and chemical constitution of the tropëines can be made at present which will explain the observed facts."

In conclusion it may be mentioned that the book has been brought completely up to date, and contains information concerning such recent discoveries as the nature and action of the quinine derivatives discovered by Morgenroth (optochin, vuzin, etc.), and the ergot alkaloid ergotamine prepared by Spiro and Stoll.

Enough has been said to indicate the large amount of information contained in this volume; much of it has been derived from very widely scattered sources and would be difficult to find in a concise form anywhere else. The book will be found invaluable by all whose work involves the study or preparation of alkaloids.

[7] *The Plant Alkaloids.* By T. A. Henry, D.Sc. Second edition. London: J. and A. Churchill. 1924. (Demy 8vo, pp. vii + 456; 8 plates. 28s. net.)

THE COLLECTED WORKS OF PASTEUR.

THE third volume[8] of the collected works of Pasteur has been issued in Paris. The edition is beautifully printed on large paper, and the illustrations are well reproduced. It is edited by Pasteur's grandson, Dr. VALLERY-RADOT, physician to the Paris hospitals, and is a model of what such a collected edition should be. Pasteur's own text has been followed, except that obvious printer's errors have been corrected, and bibliographical references have been verified and emended if necessary. When Pasteur published a similar paper in several periodicals variations are indicated in footnotes, or where this has not been found expedient each different version is given. This third volume is entirely concerned with vinegar and wine, researches in the course of which Pasteur laid the foundations which presently led him on to the study of disease in man and animals. As Dr. Vallery-Radot remarks in his preface, this volume displays at once the precision of Pasteur's scientific investigations and his readiness to point out their practical application.

NOTES ON BOOKS.

DR. JOHN L. KANTOR'S handbook on *The Treatment of the Common Disorders of Digestion*[9] is somewhat out of the common, and contains a great deal of very practical simple advice as regards the general management of a class of cases with which every medical man has constantly to deal. The chief subjects discussed are the general management of functional digestive disorders, ptosis, gastric irritation, ulcer, constipation and diarrhoea, achylia gastrica, and gall-bladder disease—all conditions which require careful and sane handling. In his introductory chapter Dr. Kantor discusses prophylaxis, and traces much of the dyspepsia of adults to faulty dieting during childhood. He is not obsessed with the value of drugs, and considers that such things as appetizers, tonics, predigested foods, and intestinal antiseptics can be almost entirely dispensed with. He uses only a few simple drugs, and relies in the main upon diet, physical therapy, and hydrotherapy. He suggests, however, that many of the good effects of spa treatment are due as much to the wetness as to any other quality of the waters consumed. The chapter on ptosis and the asthenic state contains a very lucid account of the treatment recommended. The author is opposed to operative procedures, and is of opinion that asthenics as such should not be operated on. The book contains a number of illustrations, most of them radiographic; they are very good and beautifully produced. They dramatically set out the value of radiography in the exact diagnosis of conditions the nature of which, before the radiographic era, was almost entirely conjectural. The conclusion is that the rational treatment of gastric disorders cannot be carried out in the absence of an *x*-ray examination.

Dr. PAUL KAMMERER'S little book on *Rejuvenation*[10] is a popular exposition of the Steinach operation on men and animals. The indications and limitations of the method are set forth, and several photographs are given of men and animals before and after the operation. The cases in which successful results have been obtained are classified in six groups according as physical strength has been improved, mental activity restored, the activity of the senses regained or improved, arterio-sclerotic conditions and high blood pressure alleviated, premature old age or actual senility deferred, and mental depression relieved. A short bibliography is appended.

Professor G. H. ROGER'S work on medical biology[11] consists of seven lectures delivered in the course of an official visit to the medical faculties of Brazil, the Argentine, Chile, and Uruguay. The subjects discussed are the internal functions of the lung and its action on fats, the normal and pathological physiology of the lung, the cardio-vascular action of certain organic extracts, experiments on the suprarenals, the action

[8] *Oeuvres de Pasteur.* Tome iii. Collected by Dr. Pasteur Vallery-Radot, Médecin des Hôpitaux de Paris. Paris: Masson et Cie. 1924. (Imp. 8vo, pp. vii + 519; 57 illustrations. Fr. 100.)

[9] *The Treatment of the Common Disorders of Digestion.* By John L. Kantor, Ph.D., M.D. London: Henry Kimpton. 1924. (Med. 8vo, pp. 245; 63 figures. 24s. net.)

[10] *Rejuvenation and the Prolongation of Human Efficiency.* By Dr. Paul Kammerer. With an Introduction by Dr. Harry Benjamin. London: Methuen and Co., Ltd. 1924. (Post 8vo, pp. xix + 252; illustrated. 8s. 6d. net.)

[11] *Questions actuelles de biologie médicale.* Par G. H. Roger. Paris: Masson et Cie. 1924. (Med. 8vo, pp. 194; 49 figures. Fr. 16.)

of the liver on poisons, the action of ferments, and the functions of the bile. The book, which contains an account of experiments carried out by Professor Roger and his pupils, will be of interest to both the physiologist and the clinician.

PREPARATIONS AND APPLIANCES.

Kaolin.

Kaolin possesses marked powers of adsorption. It has been used medicinally in Central Europe for the treatment of intestinal complaints for many years; attention has been directed to its value more particularly in recent years. It appears to exert a power of selective adsorption on certain toxins, particularly those of cholera and dysentery. Its mechanical action on the surfaces is stated to be favourable. Since the adsorptive power is a function of the surface of its particles, its activity depends on the degree of fineness. "Osmo" kaolin, which is manufactured by Messrs. Allen and Hanburys, consists of the finest particles separable from china clay; it is prepared by electric treatment of an aqueous suspension of the clay. A sample submitted to analysis has been found to possess a very high degree of fineness, yielding with water a permanent suspension; its adsorptive property is indicated by the power of wholly decolorizing a solution of methylene blue when only 5 grams is shaken with 25 c.cm. of an aqueous solution containing 0.25 per cent. of the dye. The sample contained no organic or mineral impurity. It appears that kaolin may frequently prove useful in disease attended by diarrhoea.

THE MEDICAL DEFENCE UNION.

Annual Meeting.

Report of Council and Solicitors' Report.

The Medical Defence Union, Limited, held its annual general meeting on September 25th at Brighton. Steps have been taken to extend the benefits of membership to practitioners in the Irish Free State, Northern Ireland, the Channel Islands, and the Isle of Man. The standing joint committee, consisting of four representatives of the Union and four of the London and Counties Medical Protection Society, has continued to co-ordinate the work of the two bodies, although each body retains its entire independence. Considerations arising out of the astounding damages awarded in the first instance in the Harnett case led the two societies to decide to afford their members unlimited cover in respect of damages or costs of the other side. The report gives some examples of the variety of cases which come before the council for advice or further action. In one case a local inspector of taxes sought to assess a member upon the rateable value of a house which he occupied rent free in virtue of his office as medical superintendent of one of the hospitals of the Metropolitan Asylums Board. An appeal was lodged by the council against the assessment, and the decision of the special commissioners was to the effect that the beneficial occupation of a house in such circumstances was not an emolument within the meaning of the Finance Acts, and accordingly the assessment was discharged. The report points out that this decision does not affect the liability of resident medical officers in certain of the hospitals to be assessed for income tax upon any monetary allowance they may receive specifically in lieu of quarters. The council has appealed against the refusal of an inspector of taxes to allow a deduction for subscription to medical societies in a case in which the assessment is under Schedule E; when the assessment is under Schedule D this deduction is usually allowed. The report states that an unusually large number of cases of unqualified practice have been investigated during the year, but in the majority it was impossible to obtain sufficient evidence to justify proceedings. In one case a conviction was obtained and the maximum penalty imposed; another case was dealt with under the Probation of Offenders Act, and in a third case the summons was withdrawn on part payment of costs and an undertaking not to repeat the offence.

The solicitors to the Union (Messrs. Hempson), in a report which is appended to that of the council, refer to the frequency with which the failure of a practitioner to have an *x*-ray photograph taken in a case of fracture or dislocation has been raised in an allegation of negligence. They urge that any member of the profession whose advice is rejected should take steps to place on record that the advice was given and disregarded; there should at least be no difficulty in writing a letter to the patient repeating the advice given, and retaining a copy of the letter. Comment is made upon the informal character of inquiries before Medical Service Subcommittees, where rules of evidence are not observed and hearsay evidence is accepted without hesitation. The insurance regulations do not permit a practitioner to be represented at such inquiries, but the council can advise members on the presentation of their case. The solicitors furnish some interesting figures, showing, among other things, the average cost to the Union of the defence of its members in seventy-three of the heaviest cases occurring during the last fifteen years. The total cost of these seventy-three cases was £17,084, an average of £234.

President's Address: Radiology in Injuries to the Limbs.

The chair was taken at the meeting by the President, Mr. Walter G. Spencer, O.B.E., F.R.C.S., who, in moving the adoption of the annual report, congratulated the members upon the satisfactory position occupied by the Union. Already the number of new members elected in the nine months of the current year (over 1,200) exceeded that of the whole of any previous year, and the roll of members now reached a total of over 11,800. Recent events had led the council, after consultation with the London and Counties Medical Protection Society, to provide members with unlimited indemnity against damages and costs of the other side on the same conditions as had previously prevailed, and without any increase in the annual subscription to the Union. Unfortunately, quite a number of medical practitioners within the area covered by the Union were still completely unprotected against the attacks of unscrupulous persons. Even in Brighton less than 50 per cent. of the registered medical practitioners had joined the Medical Defence Union. Membership of the Union ensured that the great majority of frivolous attacks against medical practitioners were at once arrested, always provided that the member did not rashly commit himself by act, speech, or letter in the first instance, but at once applied to the Union for advice and help. It was necessary to emphasize and repeat the warnings so frequently given that an *x*-ray photograph should be taken as soon as it could be done after any accident in which there was a possibility, however remote, that a fracture or dislocation might have occurred. When, for any reason, some delay was unavoidable in arranging for the photograph, a record should be made in writing for the signature of the patient or his representative. Mr. Spencer referred in feeling terms to the death of Sir John Tweedy, a former president, and Dr. J. Roche Lynch and Dr. A. C. Roper, former members of the council, and also to the loss which the Union had sustained through the retirement of Dr. M. Hallwright from the council owing to ill health. He congratulated the Union on the efficient services rendered to the Union by the General Secretary and his clerical staff.

The annual report of the council and the financial statement for the year 1923 were adopted unanimously. Sir Charles Ballance, K.C.M.G., C.B., M.V.O., Dr. E. C. Greenwood, and Dr. W. S. A. Griffith were unanimously re-elected members of the council.

Extraordinary General Meeting.

At the conclusion of the annual general meeting an extraordinary general meeting was held, when proposals submitted by the council for alteration of the Articles of Association were unanimously adopted. Some objection was raised by Dr. I. Feldman, who spoke on behalf of several members, to the proposed new Article 39A, which provided that the council should have an absolute discretion as to the giving or withholding the indemnity against damages and costs of the other side in unsuccessful actions, and empowered the council to provide such complete or partial indemnity as the council should in its discretion think fit.

After hearing explanations from the solicitor and several members of the council, Dr. Feldman expressed himself as completely satisfied that the proposed new Article was suggested in the best interests of the members, and accordingly voted for its adoption.

British Medical Journal.

SATURDAY, OCTOBER 4th, 1924.

CANCER OF THE BREAST AND ITS SURGICAL TREATMENT.

Last May the Departmental Committee of the Ministry of Health dealing with cancer issued a memorandum on the results of operation for cancer of the breast.[1] Such a statement of the position was needed from the public point of view, but the excellent results claimed occasioned some surprise amongst not a few medical men, and may even have been met with a certain amount of incredulity. The Committee has now issued a very full report[2] on the subject, containing an analysis of the data on which the memorandum was founded, and a critical survey of this report ought to convince even the most sceptical that the effectiveness of operation is considerable. An immense amount of labour has been spent on its preparation by the author, Dr. Janet E. Lane-Claypon, who has been guided in the statistical investigations by Dr. Major Greenwood. Close on 20,000 cases have been analysed, culled from numerous articles published in practically every country in Europe, including this country, and also in America. It is believed that no important paper containing series of operated cases was missed. Owing to the want of uniformity in the systems of grouping of cases by the original authors much careful study was necessary in order to place a large number of cases on a similar basis for purposes of comparison, for until this was done no reliable statement could be made regarding the increased expectation of life following operation.

The duration of life after operation depends on several factors, the most important being the stage of the disease at the time of operation and the method employed by the surgeon. Dr. Lane-Claypon traces the development of the operative treatment, which has increased in complexity and effectiveness in correspondence with the improvements in surgical technique and knowledge of the modes of dissemination; she shows how the operation mortality, which stood at about 15 per cent. forty years ago, is now practically negligible. For the purposes of analyses of published results the operations were grouped as "complete" and "incomplete"—the former including such methods as ensured removal of the whole breast, axillary contents, and pectoral muscles, with varying degrees of skin and fascia, and the latter those in which the organ and axillary contents, and, at most, some fibres of the pectoral muscle, were removed. Very advanced procedures, such as the operations of Halstead and others, mostly reserved for late cases, did not in the mass show any improvement over the less complete. The author states that it is generally admitted that operative procedures have reached their limit and cannot be advantageously extended, so that until some other method of cure is discovered efforts must be directed towards securing operation at as early a stage as possible. It is well, then, to have as accurate an estimate as may be possible of the results of our present operative methods.

In the consideration of the material furnished by the reports of surgeons those cases were excluded entirely which failed to be traced for the full period after operation, as were also those cases in which it was known in advance that complete removal of the growth was impossible, whilst all those dying before the expiry of the time, whether from operation, accident, or other disease, were reckoned as having died of cancer. On that basis it can be justly maintained that the statistical method adopted underestimates the real claims. There is no general agreement as to the length of time which should elapse before a patient may be regarded as cured, and for that reason the term "cure" has been omitted: those who died were regarded as having succumbed to the risk of death, and those who lived for the allotted period were regarded as having survived the risk independently of their physical state at the conclusion of the period of risk. This must not be taken to imply, as some have done, that the patient has no signs of recurrence at the end of the period. As most of the original authors have reported their cases at the end of a three years' period, this has been the time chosen to arrive at a basis of average results. Naturally, the longer the period the more the difficulty in tracing patients and the greater the losses from recurrence must be. The figures, then, show that following the older or "incomplete" operation, out of a net total of 7,029 patients, 2,956, or 29.2 per cent., were alive at the end of three years after operation, and that after the modern or "complete" operation, out of a net total of 8,921 patients, 3,857, or 43.2 per cent., were alive. This by itself is sufficient evidence of the greater value of the complete operation, but there is the further consideration that under modern methods many more cases in an advanced stage come within the scope of operation than formerly, for the risk of death from operation, even with the most extensive operative procedures, is negligible: the results of complete operations are thus heavily weighted with the deaths due to the inclusion of this category. An examination of the available material did not lend any support to the opinion that the end-results among private patients surpassed those of the hospital class.

The more recent writers have chosen a five years' period as a better index of the worth of an operative measure, but the numbers of cases so reported are perhaps too small as yet to give us exact indications. It was found that there were great variations in the end-results reported, and no adequate explanation of this variation could be given, although it is evident that the inclusion of only a few very advanced cases would seriously affect the percentages; taking the average of all the cases analysed (numbering 2,441), 33.1 per cent. survived the five years' test. Beyond this time the amount of material was too scanty to allow of reliable statistics. Attention is, however, drawn to unpublished statistics by Dr. Wyard of the Cancer Hospital, who traced the fate of 278 cases which had been operated upon there more than nine years previously; he found that 42 (or 16.9 per cent.) were alive and well. This is too severe a test, however, as many might have been expected to succumb from risks other than cancer. As Dr. Lane-Claypon mentions, there is a belief held by some surgeons that metastases as a post-operative cause of death are increasing under the modern methods, while local recurrences are decreasing, and a fear has been expressed by a few that the extensive operations practised are responsible for the metastases. There seems, however, to be little foundation for these suspicions. The statistics show that under the incomplete opera-

[1] British Medical Journal, May 24th, 1924, p. 924.
[2] *Cancer of the Breast and its Surgical Treatment: A Review of the Literature.* By Janet E. Lane-Claypon, M.D., D.Sc. Ministry of Health Report 28. H.M. Stationery Office, or through any bookseller. Price 2s. 6d. net.

tion 92.95 per cent. of recurrences took place within three years of operation, as contrasted with 87.8 per cent. under the complete operation. Taking into account the fact that the cases submitted to operation nowadays are more serious than formerly, it is evident that there is a not inconsiderable prolongation of life due to modern operations. At the present time the majority of the patients ultimately dying pass the first year of operation, whereas only about one in three did so formerly. The percentages of the various countries showed a remarkable agreement on the point. Whilst the available evidence does not imply that there has been any increase in the actual formation of metastases, it probably denotes that owing to the reduction in recurrences and the consequent prolongation of life more time is available for a greater development of metastases than formerly. An attempt to correlate the prognosis after operation with the histological variety of the carcinoma did not give information of any value, and the classification of types of carcinoma adopted by certain surgeons and by descriptive pathologists of the older school is now generally abandoned.

The stage of the disease when operation is performed is of supreme importance in determining the result, and it is the careful analysis of papers from this point of view which makes this report so valuable. It was found possible to group the cases into three classes according to Steinthal's classification—namely: (1) where the tumour was small and not adherent to the skin, and not more than one or two axillary glands were found infected at operation; (2) where the skin was adherent to a moderate-sized growth and the axillary glands were palpable; and (3) where most of the mammary gland was involved and the tumour was adherent to skin and deep fascia, whilst the supraclavicular glands were often involved. When they were thus grouped it was found that after the "complete" operation the percentage of survivors at three or more years was from 65 to 80 when the disease was still local; in the second group the percentage was about 30; and in the third group only some 8 or 9 per cent. survived as long as three years after operation. Thus, if a patient be operated upon at the early stage by modern methods her chances are 12 in 15; if she waits until the disease has spread her chances by "complete" operation fall to 5 in 15, and by "incomplete" to less than 3 in 15; whilst in the later stages the chances are about 1.5 in 15 for either kind of operation. When the supraclavicular glands are involved 7.7 per cent. survive three years and 3 per cent. for five years.

A chapter is devoted to the very vexed question of precancerous conditions, the liability of benign growths to become malignant, the relation of chronic mastitis to true cancer, and the dangers supposed to arise from exploratory operations; but the statements are mainly quotations from American authors and are not in general accepted. The author's summing-up, that "it can hardly be doubted that operation in the precancerous stage would rob cancer of the breast of most of its dangers and the percentage of cures would be greatly increased," is not on the same high level as the other conclusions built on more solid data. However, we may repeat, for what it is worth, the estimate of McCarty, made on his experience at the Mayo Clinic, to the effect that if a radical operation be performed on clinically doubtful cases, 1 in 20 breasts will be removed unnecessarily, whilst if they are dealt with as benign 1 in 10 fails to be removed when it should be.

A consideration of reported cases revealed nothing novel or suggestive from the point of view of etiology, but the accurate information obtained on several points should dispel numerous errors that have gained wide currency. The social status of the patients has no influence on the average age of onset of the disease; there is no inherently greater malignancy in cancer amongst young persons than amongst the older; married women are not more prone to cancer of the breast than single (in fact, the single have a slightly higher risk); neither child-bearing nor faults of lactation have any evident bearing on its incidence; there is no appreciable difference between the two breasts as regards the frequency with which they are affected by cancer. These conclusions and several others are amply supported by the statistics given.

There is an interesting chapter on the expectation of life after operation which is stimulating and suggestive, and may be commended as a study in what might be called speculative statistics. Left without operation a patient, say at the age of 50, has an expectation of 3½ years of life from the date of the first sign of the disease; if she is subjected to complete operation, without distinction of the stages of the disease, her expectation is increased to 6 years and 8 months, but if the operation be performed early this expectation is almost doubled. A table is given, admittedly based on slender data, showing the average number that may be expected to survive up to ten years after operation.

Such a brief summary as this gives a feeble indication of the amount of evidence collected and ably analysed by Dr. Lane-Claypon, and we can be sure that her thorough work will be appreciated, not only by surgeons, but by all medical men who read her exhaustive report.

TECHNICALISM.

A WRITER in a recent issue of one of the big monthlies exercised about some unfortunate words—words, that is, badly constructed or improperly applied—was polite enough to admit that a good deal of pains has been taken to form new medical words with due regard to etymological propriety. He went on, however, to imply that too many new medical terms were invented, and even to insinuate that they were devised to mystify the public by a suggestion of knowledge more profound than we really possess or with the deliberate intention of concealing the truth from the layman. There is just enough basis for the second allegation to make it impossible to deny it altogether. A doctor is not on his oath always to tell the whole truth to everyone who consults him. He has to treat the patient as well as the disease; there are occasions when it is wiser to speak of blood poisoning than to blurt out syphilis. Sometimes a patient or his friends, while professing a desire to know the truth, dread in their hearts to be told the whole. There is a story of two fashionable physicians of the last century who met in consultation on a distinguished patient in a late stage of Bright's disease; the first physician, in talking with the wife, avoided naming the disease or giving a prognosis. The wife appealed to the consultant. "Now," she said, "you will tell me the truth. I shall know what is really the matter with him." "Madam," was the reply, "your husband is suffering a cachexia," and the lady was satisfied. She was ready to catch at a straw, and a straw was held out to her.

But the suggestions that new medical terms beyond necessity are accepted into medical literature, or that there "is a secret language of disease," are fallacies,

so prevalent even among people who deem themselves well educated that it may be worth while to examine them. When a new thing has been discovered mankind has always sought a name for it, soon tiring of periphrasis and wanting a handy noun. There was a time, no doubt, when man was satisfied by drawing a distinction between a falcon and other birds; later on he observed that there were several kinds of falcon and gave each kind its name, and the early ornithologist thereby acquired merit. So our forefathers were satisfied to talk of a palsy; now we distinguish many kinds of palsy, give each a name, and the name calls up a picture of the condition and suggests cause and prognosis. Again, when the physiologist finds a new substance he wants a name for it. From certain facts then known Sir Edward Sharpey Schafer deduced the existence of a hormone formed by the islands of Langerhans of the pancreas. He did a service when he replaced this mouthful by the noun insulin.

Therefore technical terms must be invented and defined; later on the progress of knowledge may make it necessary to replace the older term by two or three new terms, to be defined anew. But technical terms may be used inordinately and without discretion. Mr. A. B. Walkley, in an address to the London Telephone and Telegraph Society,[1] has asked, What is the appropriate style for a technical subject? By style he meant the whole manner of presentation and not only what is commonly understood by literary style, for " so soon as you sit down to express anything, however scientific, however practical, at that moment you cannot help beginning to have a style "; we may accept this, though few of us can aspire to a style so individual and distinguished as his. Style is the outcome of a man's temperament, his character, his taste, and, we will add, not only of his " intellectual life history," but of the state of his mind there and then in respect of that particular subject. Lucidity is a prime requisite of every good style, and as the main object of every scientific writer is to " transfer knowledge of certain facts, and thoughts about those facts, without damage in transit," lucidity is for him the first and last requisite. " There must be no surplusage of phrase and there must be strict economy (which, of course, means not parsimony but nice adjustment of means to ends) not merely in the language but also in the structure of our exposition." Mr. Walkley mentions two pitfalls which beset writers of technical papers. The first is the assumption that the reader knows or remembers more than is at all likely. In our experience this fault is not one into which a medical writer commonly falls; contrariwise he is apt to begin with Hippocrates and to go on through Sydenham to the relation of a vaccinal method of treating influenzal pneumonia; yet we may admit that this pitfall is not always avoided by the writers of pathological and physiological papers.

For the second pitfall Mr. Walkley, as is his right, invents a new term, " technicalism "; by which he means the abuse of technical words and technical abbreviations. It is, he says, one of the indiscretions of youth, and he seeks to account for it in part by the suggestion that young writers " are more prone to exude technicalities because they have so recently been filled up with them," just as Boileau's baby smelt of milk. He suggests as another reason for this vice that it carries some vague idea of freemasonry, and is often used " as a kind of shibboleth to separate the people inside the pale, who understand, from the people outside, who do not." There is a good deal of truth in this, but sometimes there is another element —shyness; the writer knows the laboratory shorthand and is afraid to be laughed at or thought a prig if he uses longhand; occasionally he could not if he wished. He has found a term (or more often an abbreviation) in common use, and has been content to use it as a symbol without being at the trouble to find out what it really means. Laboratory slang may be all right in the laboratory, but, like the mango, it does not export well. Mr. Walkley might find in laboratories much justification for his assertion that technicalism " debases the King's English into jargon."

There is to-day a tendency for the workers in the various sciences, and in the many departments of each science, to think only of their immediate fellows and to become unintelligible to the others. Many leaders in scientific thought in various departments have pointed out that this is a real obstacle to progress; it not infrequently happens that the worker in one department could find the clue in the papers of a worker in another department; but these papers are either not known to him or he cannot understand them owing to this vice of technicalism. As Sir Clifford Allbutt has written: " I earnestly advise the student to examine technical gibberish suspiciously, and to avoid it if he can."

[1] *The Journal of Public Administration*, vol. i, No. 2.

VOLUNTARY BOARDERS IN A PUBLIC MENTAL HOSPITAL.

Mental patients who are sufficiently aware of their illness, and are desirous of voluntarily submitting themselves to treatment, may be admitted to registered mental hospitals and licensed houses in England and Wales without certification. That this system has found favour and proved to be of value, especially in registered hospitals, where the formalities for admission are much simpler than those for licensed houses, is evidenced from the large number of patients admitted on this basis. Thus it is seen from the annual report of the Retreat, York, for 1923, that over 48 per cent. of the admissions were voluntary boarders, and from the report of Bethlem Hospital for 1924 that over 33 per cent. belonged to the same category. In the case of the county and borough mental hospitals, however, voluntary admission has hitherto not been permitted, and all patients have to be certified under the Lunacy Act. The only exception to this rule was the Maudsley Hospital, in respect of which, in 1914-15, under Section 23 of the London County Council General Powers Act, power was given for the reception and treatment of boarders, both private and rate-aided, and, in the case of the latter, for their maintenance. This hospital does not admit certified cases, however, and is thus not quite in the same position as the registered hospitals, in which both certified patients and voluntary boarders are taken. In view of the restrictions which have existed in public mental hospitals, the announcement by Alderman Sir George Truscott, at a meeting of the Court of Common Council of the City of London on September 25th, that recent legislation (Part V of the City Various Powers Act, 1924) conferred on the City of London Mental Hospital statutory power to receive voluntary boarders, is one of considerable interest and importance. Sir George Truscott pointed out that the urgent necessity of legislation to enable voluntary boarders to be received in public asylums has been constantly urged upon the present and preceding Governments by visiting committees, and he naturally expressed a feeling of satisfaction that the City of London was a pioneer in this new development. The public asylums have always been in an anomalous position in regard to this matter, and there would appear to be no justification for the denial of voluntary admission to patients wishing treatment in these

institutions. There are certain difficulties in regard to chargeability where rate-aided patients are concerned which do not exist in the case of paying patients, but these could readily be overcome. In approving a private Act applicable to one asylum Parliament has taken an important step, and admitted a principle the value of which has often been urged upon it; there would now seem to be no reason why the provision should not be extended to all the public mental hospitals in England and Wales. There is not the least doubt that there are a number of patients who, though not definitely insane, may be conscious of a want of power of self-control, or of addiction to drug habits, or of a liability to a recurrent attack of mental illness, who would seek refuge voluntarily in the public mental hospitals. Patients do, in fact, frequently apply for treatment in these institutions, but as the law now stands they must be refused admission. This, then, is one direction in which the Lunacy Acts are in urgent need of reform, though it is by no means all that is required. There are a number of patients eminently recoverable who are too confused and disturbed to come under the category of voluntary boarder. For such cases the law should be so amended as to permit of their treatment for a time without certification. Such treatment could be carried out in a general hospital, as we pointed out last week, or in a clinic devoted exclusively to mental cases and detached entirely from certified cases and the mental hospital.

WALTER LONG.

THE death of Viscount Long of Wraxall recalls to mind the great service he rendered to human beings and animals in this country when, as Mr. Walter Long and President of the Board of Agriculture, he firmly resisted the popular clamour which arose against the Orders of the Board regarding the muzzling of dogs and the quarantining of imported dogs at the ports. The fundamental researches of Pasteur and the inquiries conducted in this country by the late Sir Victor Horsley while superintendent of the Brown Institution had proved that rabies was only transmitted by subcutaneous inoculation. Muzzling had been recommended, as, for instance, by F. Kerslake in his *Hydrophobia, its Cause and its Prevention by Muzzling*, published in London in 1890, and was urged upon the Board of Agriculture by its veterinary department. Mr. Walter Long had the support of two other country gentlemen, Mr. Chaplin, who had been instrumental in separating the Board of Agriculture (with Major Tennant at its head) from its previous status as a department of the Privy Council, and Lord Salisbury as Prime Minister. A partial order for muzzling in Middlesex was made in 1895, as noted in our columns on October 26th, 1895; the complete and general enforcement of muzzling followed in 1897. A most violent opposition arose against what was as much a benefit to animals as to man. A Canine Defence League obtained 80,000 signatures to a petition praying for Mr. Long's dismissal from his office, which Lord Salisbury met with quiet ridicule, telling Mr. Long that he had received the petition, and would he like to have it to keep. At no time in his life did Mr. Long receive so many threatening letters as during these five years, but at the end of them the country was quite free from rabies. Between 1889 and 1898 140 deaths from hydrophobia were noted in the United Kingdom—30 in 1889, 20 in 1895, 8 in 1896, 6 in 1897, 2 in 1898. In 1899 there were no deaths. A chart showing this decline and disappearance was published in this JOURNAL (1901, vol. i, p. 1438). The quarantine at the ports has continued to protect the country against the recurrence of rabies except for occasional smuggling in of dogs, especially during the war. Isolated outbreaks of rabies which followed simply confirm the necessity of continuing the quarantine so long as wolves in France are not exterminated. At the Annual Meeting in London in 1910, under the presidency of the late Sir Henry Butlin, Mr. Long was made an honorary member of the British Medical Association. His speech on the occasion was reported in the SUPPLEMENT of July 30th, 1910 (p. 223). He was also elected F.R.S.—the only addition to his name on the title-page of his *Memories* (1923). On page 130 of these memories he writes: "I received immense pleasure from the resolutions of thanks I received from our great Medical Association, especial satisfaction from one which stated that not only was the country rid of this terrible scourge, but that the treatment of infantile cases had been immensely aided, because it had become possible, when the symptoms were of a certain character, to eliminate hydrophobia as a cause of the trouble, and so to concentrate attention upon other causes, such as infantile paralysis. Many a doctor and surgeon has assured me that it has been of immense benefit to them in their work, and has enabled them to save cases which might otherwise have been lost." Even though hydrophobia has been prevented in this country, the pathological interest of its possible relationship to other cerebro-spinal infections remains. On leaving the Board of Agriculture in 1900, Mr. Long became President of the Local Government Board, to which he had previously been Parliamentary Secretary. In 1905 he left the Board to become Chief Secretary for Ireland. During the war he was successively President of the Local Government Board, Secretary for the Colonies, and First Lord of the Admiralty. He finally retired in 1921, when he received his viscountcy. Lord Long was very much esteemed and respected by all classes and all parties, and the memorial service at St. Margaret's, Westminster, on September 30th was attended by a very large number of mourners. The British Medical Association was represented at this service by Dr. Alfred Cox, Medical Secretary.

INTELLECTUAL CO-OPERATION AND THE LEAGUE OF NATIONS.

A WHOLE sitting of the Assembly of the League of Nations at Geneva on September 24th was devoted to the subject of intellectual co-operation. A report on this subject was prepared by Professor Gilbert Murray, British delegate, who said that, in spite of the obstacles to intellectual communication during the war and since, sufficient vitality remained, even in countries which had suffered most, for organizations to be formed which were capable of continuous effort. These National Committees on Intellectual Co-operation were formed first of all in the new countries of Central and Eastern Europe, and later in countries where conditions were more or less normal, such as Belgium, France, Switzerland, and Brazil, and committees are now being established in Britain and Italy. They were to serve as intermediaries between organizations for intellectual life in those countries and the International Committee of the League itself. This last body, which meets periodically at Geneva, is presided over by M. Bergson, and includes among its members Professor Einstein, Madame Curie, and Professor Lorentz. One of its minor undertakings has been to arrange for publications to be sent to many institutions of learning in Central Europe, and its appeal on behalf of the University of Tokyo has met with a response in many countries. It has drafted a convention whereby the signatory States agree to facilitate the exchange of scientific and literary publications, and a number of national exchange services already enjoy free postage in their respective countries. Another work which has been completed is an analytical bibliography of physics—not merely a list of works but a series of abstracts—and it is hoped to undertake a similar labour in other branches of science, including biology. The committee in its report gives much advice on the preparation of abstracts. It

urges that all works published by scientific journals should be preceded by abstracts, drafted for preference by the authors themselves, in conformity with precise rules. The abstracts should indicate briefly the conclusions of the article, the results obtained, and statistics of general importance, including everything which may be of use in drawing up a manual or table of constants. Experience has shown that the proper length of an abstract is from 4 to 8 per cent. of the length of the article. It is also urged that the publications of learned societies, if in a language other than one of the principal European languages, should contain summaries in one of the more widely spoken tongues. Another task which has been undertaken is the compilation of a list of the most important books printed throughout the world. This list is to be at the disposal of a public of average culture which has hitherto been unable, by force of circumstances, to obtain information concerning intellectual production in foreign lands. Recommendations have also been made to the several States with regard to the interchange of professors and the granting of travelling facilities and scholarships to groups of students and professors and men of letters going abroad for some specific scientific purpose. The Spanish Government has made proposals with regard to the equivalence of degrees and the co-ordination of studies in the universities; this project is favoured by the committee, but the difficulties in its way are considerable. The committee proposes to publish information concerning the methods of teaching in the various countries. All these proposals were approved by the Assembly, but a more contentious matter was raised by an offer of the French Government to found an Institute of Intellectual Co-operation in Paris, the institute to be absolutely international in its programme and choice of staff, and its administration to be entrusted to the League. Delegates from Poland and elsewhere warmly acclaimed the French offer, and the Belgian delegate emphasized the historic contribution of France to the ideals of intellectual co-operation, which were found embodied in the *Nouvelle Atlantide* of Condorcet as far back as 1793. Some voices, however, were raised against the proposal, on the ground that an institute in Paris would suggest that France had a monopoly of culture, and that it would be undignified for the League to include an institute which depended for its existence upon credits voted by one particular parliament. An Australian representative strongly urged that an institute of the kind should be founded in Geneva and supported by appropriations from the funds of the League. In the end, however, the offer of the French Government was accepted with something like unanimity. It may be added that the whole work of the Institute of Intellectual Co-operation involves a contribution from the people of Great Britain, France, and the other countries which furnish the principal financial support to the League, amounting to about one halfpenny per head of population per century!

WORKMEN'S COMPENSATION IN FRANCE.

LEGISLATION with regard to workmen's compensation has followed a different course in France from that in this country. Prior to the law of 1898 a workman in France who sought compensation for an injury had to bring an action, and had to prove not only the existence of the disablement, but also that the employer was at fault, as this was held to be the sole ground upon which the latter could be held responsible. In arriving at a decision the court was mainly concerned in looking for a fault on the part of the employer, and the sphere of the medical man was strictly limited. The old law was productive of much hardship, and led to discontent on both sides. The law of 1898 laid down a new principle—that the claim to indemnification flows from the professional risk and not from the fault of the employer. As a corollary it followed that part of the risk properly falls on the workman, and total indemnification, such as was awarded prior to 1898, was abolished. An examination into the statistics of accidents showed that their causes could be classified under five headings: (1) the fault of the employer, (2) the fault of the workman, (3) mischance (bursting of boiler, etc.), (4) *force majeure* (floods, storms, etc.), and (5) unknown. It was further ascertained that of a hundred accidents one-quarter were due to the fault of the employer, one-quarter to the fault of the workman, and one-half to the three other causes. It was decided, therefore, that in order to distribute the burden equitably the employer should be held responsible, on the average, only for those accidents which were due to his fault and one-half of those for which neither he nor the workman could be blamed—that is, the employer was made responsible for 50 per cent. of the total. Taking its stand on these principles, the French Legislature has accorded the disabled workman pecuniary reparation corresponding to one-half of the disablement suffered in the case of partial incapacity, and to two-thirds in the case of total incapacity. The actual amount payable is calculated simply by comparing the salary before the accident with that obtainable after it. Litigation tends to centre, not round the fault of the employer, but round such questions as estimation of the gravity of the accident and the nature and degree of incapacity resulting from it—questions of a medical character. Professors Forgue and Jeanbrau have recently published a book[1] to assist medical men in the performance of their duties under the French law; the authors have not only explained the formalities to be followed, but have written a complete system of the pathology of accidents, which will be of service to medical men of whatever nationality.

MENTALLY DEFECTIVE CHILDREN.

THE Board of Education has issued a circular (1341, September 12th, 1924) to local education authorities regarding the care of mentally defective children. The Mental Deficiency Act of 1913 and the Elementary Education (Defective and Epileptic Children) Act of 1914, following on the permissive Act of 1899, contemplated that local education authorities would obtain particulars of all the mentally defective children in their areas and make arrangements with a view to the selection of children suitable for education in special schools and the notification of those judged non-educable to the mental deficiency committee of the county or county borough council. The war and consequent difficulties of finance and building prevented the establishment of sufficient special schools to meet the need. The Board has therefore been in consultation with the principal associations of authorities, officials, teachers, and voluntary workers with a view to devising methods of dealing with these children under existing conditions. Local authorities are urged to ascertain without delay the extent of the need in each area. Children in attendance at special schools should be passed periodically under review in order that suitable cases may either be returned to the ordinary school or notified to the mental deficiency committee in accordance with the Mental Deficiency (Notification of Children) Regulations, 1914. In the case of mentally defective children who are suitable for admission to special schools, but for whom at the moment no such school is available, and especially for those who are in no school at all, the local authorities' arrangements should include the supervision of the children by means of home visits, whether by school nurses, care

[1] *Guide pratique du Médecin dans les Accidents du Travail.* Suites Médicales et Judiciaires. Par E. Forgue et E. Jeanbrau. Quatrième édition, refondue avec la collaboration, pour la partie neurologique, de O. Crouzon, Médecin de la Salpêtrière. Paris: Masson et Cie. 1924. (Imp. 16mo, pp. xxiv + 840. Fr. 40.)

committee members, paid welfare workers, or voluntary workers. The main objects of such supervision are to give advice to parents on the care of these children, and to provide means by which all cases are reviewed from time to time with a view to the notification of suitable cases to the mental deficiency committee. In this connexion special attention should be given to the cases of boys and girls of the ages of 14 and 15 years in order that the provisions of Article 5 of the Notification Regulations, 1914, may be utilized in proper cases. Before making such a notification the local authority should obtain reports from the medical officer on the physical and mental condition of the child, also from the teacher on his progress and behaviour in school, and from the care committee on his home conditions. In the absence of special school provision it is considered that some of the higher grade mentally defective children may be accommodated in the classes held in ordinary schools for mentally retarded children. It is urged, however, that this should be regarded as a temporary arrangement, for there is risk to the mentally retarded that they may be deprived of their proper places in these classes, and it is impossible to continue the mentally defective in these classes after the age of 14 years. Constant and close co-operation between the local education authority and the mental deficiency committee is advised, and methods are suggested whereby this may be obtained. In some areas the chairmen of the special schools subcommittee and the mental deficiency committee are one and the same person; in some the education authority's certifying officer is also medical adviser to the mental deficiency committee; in others the co-ordinating influence is the local branch of the central association for mental welfare.

ROYAL COMMISSION ON LUNACY AND MENTAL DISORDER.

THE first meetings of the Royal Commission on Lunacy Law and Administration and Mental Disorder will be held at the Royal Commission House, 5, Old Palace Yard, Westminster, S.W., on Tuesday, October 7th, and Wednesday, October 8th. On October 7th evidence will be given by the Board of Control and on October 8th by the Ministry of Health and the Lord Chancellor's Department. The Commission is instructed "(1) to inquire, as regards England and Wales, into the existing law and administrative machinery in connexion with the certification, detention, and care of persons who are or are alleged to be of unsound mind; (2) to consider, as regards England and Wales, the extent to which provision is or should be made for the treatment without certification of persons suffering from mental disorder; and to make recommendations." The Commission is constituted as follows: The Right Hon. H. P. Macmillan, K.C., standing counsel to the Convention of Royal Burghs, Scotland (Chairman); Earl Russell; Lord Eustace Percy, M.P.; Sir Thomas Hutchison, Bt., Director of the Commercial Bank of Scotland, and Lord Provost of Edinburgh 1921-23; Sir Humphry Rolleston, Bt., K.C.B., M.D., President of the Royal College of Physicians of London; Sir Ernest Hiley, K.B.E., at one time town clerk of Birmingham, and formerly M.P. for the Duddeston Division of that city; Sir David Drummond, C.B.E., M.D., Pro-Vice-Chancellor of the University of Durham, and formerly President of the British Medical Association; Mr. W. A. Jowitt, K.C., M.P.; Mr. F. D. MacKinnon, K.C.; Mr. H. Snell, M.P., a member of the executive committee of the Fabian Society, and formerly a lecturer for that society; Mrs. C. J. Matthew; and Miss Madeline J. Symons, of the Women's Section of the National Union of General Workers; with Mr. P. Barter, of the Ministry of Health, as secretary. All communications regarding the Commission should be addressed to "The Secretary, Royal Commission on Lunacy and Mental Disorder, Ministry of Health, Whitehall, S.W.1."

WEST INDIA RED CROSS SOCIETY.

THE West India Red Cross Society and the West India Committee are associated with the present Mansion House appeal for help for the sufferers in the Leeward Islands, which were recently devastated by a hurricane. At a meeting of the committee of the former society, held in London at the end of July, the honorary secretary, Dr. G. B. Mason, reported on the progress that was being made in establishing the society and in fulfilling its two objectives of reducing the high rate of infant mortality in the British West Indies, and of furthering the welfare of the local population. British West Indian labour, he said, had been extensively used in the construction of the Panama Canal, and 90 per cent. of the labourers had sent back their savings to the West Indies. The present high infantile mortality was destroying an undoubtedly valuable asset of the empire, and the society was therefore addressing itself to the task of remedying this. It is proposed to appeal next year to the British public for £10,000, the income of which will be used to help the societies working in the Windward and Leeward Islands. More British doctors are urgently needed, and also administrative improvements in the medical services of the various islands. In Barbados the prevention of such diseases as typhoid fever and tuberculosis is a serious problem, to be tackled by drainage reforms, improvements in housing, and the provision of better food. The activity of Sir Eustace Fiennes, the Governor of the Leeward Islands, in providing a new water reservoir in Antigua should have most beneficial results. Sir Eustace Fiennes referred to the urgent need for financial help, and paid a high tribute to the character of the planters and the West Indian inhabitants generally. The grant made by the West India Red Cross Society to the Antigua crèche had been of great value. The Rockefeller Foundation also had provided for the services of two doctors in the Leeward Islands to combat the prevalent diseases, and generous help had been forthcoming from the people of the British Isles.

MEDICAL SOCIETY OF LONDON.

THE Medical Society of London is now entering upon its 152nd year, and the syllabus for the first half of the session was issued this week. An attractive programme has been arranged. The annual general meeting will be held on Monday, October 13th, at 8 p.m., and immediately afterwords the new president, Dr. Eustace M. Callender, C.B.E., will give an address on "Medical memories." The meeting on October 27th will be a clinical evening. On November 10th a discussion on encephalitis lethargica will be opened by Dr. E. Farquhar Buzzard, who will be followed by Drs. A. J. Hall, J. McIntosh, and A. S. MacNalty. On November 19th, as already announced, Dr. Herbert Spencer will deliver his Lloyd Roberts Lecture on "The renaissance of midwifery." On November 24th a discussion on the treatment of senile gangrene will be introduced by Sir Anthony Bowlby, Bt., who will be followed by Dr. H. des Voeux and Mr. Sampson Handley. On December 8th Dr. George Graham and Professor H. Maclean will open a discussion on the present position of the treatment of diabetes by insulin. During February and March, 1925, Sir Bernard Spilsbury will give the Lettsomian Lectures, on "Wounds and other injuries"; the annual oration will be delivered in May by Sir William Hale-White, on "The medical career of John Keats."

THE Harveian Oration before the Royal College of Physicians of London will be delivered by Sir Archibald E. Garrod, K.C.M.G., M.D., F.R.S., Regius Professor of Medicine in the University of Oxford, on Saturday, October 18th, at 4 o'clock. Invitation cards may be had from the Secretary of the College, Pall Mall East, S.W.1.

BRITISH ORTHOPAEDIC ASSOCIATION'S VISIT TO BOLOGNA.

In the spring of last year the British Orthopaedic Association held a meeting at Leyden by the invitation of their corresponding member, Dr. Murk Jansen, and afterwards at Amsterdam in conjunction with the Dutch Orthopaedic Association. The opportunities of professional study and enlightenment thus afforded, and the noble hospitality of our Dutch confreres, were so highly appreciated by the members that it was arranged this year to accept the invitation of Professor Putti of the Instituto Ortopedico Rizzoli of Bologna to hold a meeting in that city. Some fifty-one members and ladies and other guests attended the meeting, which took place on September 22nd and following days.

The institute, which was founded by the benevolence of Francesco Rizzoli, a surgeon of Bologna, after whom a street in the city has since been named, is splendidly housed in an old monastery situated in S. Michele in Bosco on a wooded spur of the Apennines just outside the city. This monastery has a long and interesting history. Founded in the twelfth century, it was afterwards used as a fortress, but from the fourteenth century it was a religious house of the Olivetan Fathers. Most of the present buildings, however, date from the sixteenth century. With the coming of the Republican French into Italy in 1797 and under the Napoleonic kingdom of Italy the monasteries were swept away, and since that time the buildings have not been used for monastic purposes, but in 1860 they were occupied as a villa by King Victor Emmanuel the Second.

The present institution was organized between the years 1897 and 1893. The buildings are of magnificent proportions, and many of the rooms are superbly decorated with frescoes. The long vaulted corridor on to which many of the monks' cells opened (they are now used as wards) is almost, if not quite, unrivalled in a building of this sort, for it is 526 feet in length and of great height and width, and from its windows splendid views are obtainable over the city of Bologna with its many towers, and of the Emilian plain. The church of the monastery has some fine frescoes, and is still used by the staff and ambulant patients and the inhabitants of the neighbourhood on Sundays and weekdays.

In the Aula Maggiore of the convent is a remarkably large and comprehensive collection of orthopaedic and other medical and surgical works. This room, of which a coloured print was presented to every visitor by Professor Putti, is a gem of Romanesque architecture, profusely decorated with frescoes whose wealth of colour is a delight to the eye. Besides the frescoes the buildings of the convent contain a number of oil-paintings and are also decorated with sculptures. For a full account of all the art treasures readers are referred to *The Story of Bologna*, by Alathea Wiel (London: J. M. Dent and Sons), a copy of which also was presented by Professor Putti to each of the visitors.

Congenital Dislocation of the Hip.

On Monday, September 22nd, the members were conducted in special trams to the institute, where, after Professor Putti had cordially welcomed them, he read a report on the treatment of congenital dislocation of the hip. This deformity occurs with remarkable frequency in Northern Italy, as is shown by the fact that 450 cases were treated by Professor Putti and his assistants in the space of twelve months, while at Milan Professor Galleazzi treats at least 500 cases in a year. Very little is known of the causes of the deformity and no theory on the subject has yet been generally accepted. The usual disproportion in the sex incidence of the disease is noticeable in Italy as well as elsewhere. Professor Putti operates very early, under the age of two years if possible, by simple flexion and abduction and fixation in plaster, which always includes the knee and upper part of the leg. Open operation is reserved for cases in which the soft parts obstinately resist abduction and in which manipulation alone fails. Very interesting lantern slides of cases before treatment and after some years were exhibited, showing that although in almost every case a considerable restoration of the iliac roof of the acetabulum took place, it varied very greatly in degree and in very few cases was it anatomically complete, despite the excellent functional results. The statistics of results as recorded by the Italian Orthopaedic Association show 84 per cent. of cure in unilateral cases and 45 per cent. in double cases. Professor Putti demonstrated his method of reduction, which is extremely simple, on three cases, one of which was bilateral. The two unilateral cases were easily and quickly reduced, but one hip of the bilateral case could not be replaced, and Professor Putti stated that further attempts would be made after preliminary manipulations and massage, failing which he should probably perform an open operation. Special and ingenious tables were used for reduction and also for the application of plaster, and the quickness of the whole procedure, together with the excellent team work, much impressed the visitors.

After the demonstration in the operating theatre the wards were visited, where a number of children with corrected hips, whose first plaster had been removed, were seen exercising the joints themselves by means of a simple apparatus of cords and pulleys, each under the supervision of a nurse. This proceeding is, of course, intended to hasten the development of the joint while increasing its mobility, and at the same time it affords some exercise for the muscles of the upper extremities. After seeing other interesting cases the party had lunch as the guests of the Director in the charming garden of the Institute.

The Workshops of the Institute.

After lunch a visit was made to the extensive workshops of the Institute, where every kind of instrument and appliance needed in orthopaedic surgery is manufactured, including a most ingenious table for the treatment of fractures and dislocations. Complicated and elaborate as this instrument appears to be, it had its primitive ancestor in the scamnum of Hippocrates, a specimen of which was only recently discovered by Mr. Thomson of the Wellcome Medical Museum, also in Northern Italy (see British Medical Journal, February 23rd, 1924). The products of these workshops are supplied to surgeons and hospitals throughout Italy, and to facilitate this a very complete and well illustrated catalogue is issued. The workmanship and the quality of the materials used appeared to be excellent.

Dinner.

In the evening the official dinner of the association was held in the Hotel Baglioni, under the genial chairmanship of the president, Sir Robert Jones, when speeches and toasts were not so lengthy as to interfere with pleasant social intercourse.

On Tuesday, September 23rd, the theatre of the Institute was again visited, and the members had the great advantage of seeing Professor Putti perform three typical operations—namely, an arthroplasty of the knee for ankylosis, a tendon transfer for partial palsy of the foot and ankle muscles, and an open operation for obstinate congenital dislocation of the hip.

The operation of arthroplasty, with which Professor Putti's name is so closely connected, is already well known to surgeons, for it was described and illustrated in *La Chirurgia degli Organi di Movimento*, and also by him at the meeting of the International Society of Surgery in London last year, when some excellent results were shown; but the details of the technique can only be thoroughly appreciated by seeing the actual operation. The opportunity offered was much appreciated by the members, who had great pleasure in seeing such a real surgical artist at work. The technique and team work were of the first class.

Professor Putti tells us that he has operated on 200 cases, 60 of which were operations for stiff knees and the remainder for ankylosis of the lower jaw, the elbow, hip, ankle, and the smaller joints of the foot and of the fingers. Very great care is exercised in the selection of cases, only those cases of stiff knee in which a movable joint is really

necessary being submitted to operation. The cases which were exhibited showed excellent results several years after the dates of operation. The open operation for congenital dislocation of the hip was characterized by the same rapidity (so important if shock is to be avoided) and perfection of technique which distinguished the operation of arthroplasty.

THE UNIVERSITY OF BOLOGNA AND ITS MEDICAL SCHOOL.

On the afternoon of the same day Professor Putti gave an address in the beautiful old anatomical theatre of the University building, the Archiginassio, and described the origin of the University and of its medical school. The theatre is panelled and ceiled in cedar and adorned with modern statues of famous teachers, including Tagliacozzi, whose well known operation is typified by the fact that he holds a nose in his hand. The professorial rostrum has a canopy supported by finely carved eighteenth century wooden anatomical figures of life size, representing with great accuracy all the superficial muscles of the body, as if the skin and fascia had been removed.

Professor Putti said that the University of Bologna was the oldest in the world. Although there was no precise information about its origin, it was known that it began about the tenth century as a rhetorical and grammatical school. Before the fifteenth century the University was known as the "Studio," and was at first a school of law, which, owing to the fame of its professors, soon came to be of international importance. The students from each country were gathered together into "nations," each with its stated number; every country was under a deep obligation to those of its citizens who, after studying at Bologna, took home with them the light of learning that burnt there so brightly. From very early days it was divided into two distinct bodies—the University of the Ultramontani, consisting of students from lands other than Italy (beyond the mountains), and the University of the Citramontani, composed entirely of Italians. Each had its own rector and was divided into many nations. In the thirteenth century there were fourteen (Gaul, Picardy, Burgundy, Poitou, Touraine and Maine, Normandy, Catalonia, Hungary, Poland, Germany, Spain, Provence, England, and Gascony); in the fourteenth century there were sixteen. Among the masters of the law school was Irnerio, whose disciple Vaccario is said to have been the first to carry into England a knowledge of Roman law. He taught at Oxford, and so sowed the seed out of which the University of Oxford sprang. Francesco Accursio, who at the end of the thirteenth century was invited by Edward I to go to Oxford, was a son of a disciple of Azzone, another famous Bolognese teacher.

The study of medicine seems to have arisen in Bologna out of the privilege accorded by the city to a famous Tuscan doctor, Taddeo d'Alderotto, about 1288. But it was only about 1316 that the university of medicine was recognized by the governing bodies both of the town and the Studio and allowed to nominate its own rector. The most important chair of the medical school was then that of anatomy, in which was included surgery. The first to give lustre to this chair was Mondino dei Liuzzi, who was teaching between the end of the thirteenth and the beginning of the fourteenth century. He wrote a treatise on anatomy, which was the first of its kind, and served as a textbook all over the world for at least two centuries. Mondino's great merit was his insistence that anatomy should be studied, not from the books of Avicenna or Galen as had been done for so many centuries, but on the cadaver, a method which since the school of Alexandria—1,600 years earlier—had not been followed. Other names of Bolognese teachers to be recalled were those of Berengario da Carpi, who wrote a famous commentary on the treatise of Mondino; of Guglielmo da Saliceto, who might be called the father of the surgical renaissance, and, later on in the sixteenth century, those of Giulio Cesare Aranzi, of Costanzo Varolio, and of Gaspare Tagliacozzi, who originated the method of plastic reconstruction of the nose by means of skin flaps, which had since been known as the "Italian method." Andrea Vesalio, before going to Padua, where he taught anatomy for seven years, occupied the chair in Bologna. In the eighteenth century there were the famous names of Anton Maria Valsalva, Morgagni's master, and of Luigi Galvani, the immortal discoverer of animal electricity.

It was not known where during the early centuries the school of medicine and law had their seats. The scholars of the different nations had special places of meeting, as also their own chapels in the churches. The English scholars had very early a chapel in the Church of S. Salvatore; it was erected to the memory of S. Thomas à Becket, Archbishop of Canterbury, who had been a scholar in the Studio of Bologna. The old chapel was destroyed about the middle of the sixteenth century, but two things belonging to it were preserved—an old altarpiece by Vitale da Bologna, showing the Virgin with John the Baptist, S. Thomas à Becket, and an English scholar, and the famous pivial of Pope Innocent IV, now in the Civic Museum, representing the martyrdom of Thomas à Becket in silk and gold. As in those times it was difficult to procure the rooms and books necessary for studying, so it was almost impossible for the students of medicine to procure bodies for anatomical study. Not infrequently students or masters snatched corpses by night from the cemeteries, carrying them by stealth to their own houses. But by degrees the conditions of the Studio became better, and the anatomical theatre was finished in 1730.

The anatomy lesson generally consisted of three parts: the theoretical lesson, the discussion, the incision of the cadaver. The professor sat in his chair reading the textbook of Avicenna, of Galen, or of Mondino, and with a long stick pointed out to the assistant (better known as sector) where to cut the cadaver. By degrees the lessons in anatomy acquired so much importance that they were frequented not only by the students of medicine, but by large numbers of persons curious to know something of the structure of the human body. The archives of the State contained a very important collection of miniatures, in which are represented some of the most important lessons of anatomy given in the hall, one of which has remained famous in history for having been given by a woman, Laura Bassi, a great philosopher and anatomist.

"To-day," Professor Putti concluded, "this old anatomical theatre in which we are now assembled reposes in its past glory. The lessons are now given in a big anatomical theatre, which forms part of the modern and rich Institute of Anatomy. Here remain fluttering the spirits of the great masters who once made the name of Bologna glorious in the world."

The visitors then inspected the magnificent library, consisting of a vast collection of books in all languages, housed in a series of splendidly proportioned rooms, with which only such great libraries as the King's in the British Museum are to be compared. The cathedral was then visited, after which such members as were energetic enough to disregard the heat paid visits to other objects of interest. In the evening all were the guests of Professor Putti at dinner in the Hotel Stella d'Italia.

THE MOUNTAIN HELIOTHERAPEUTIC INSTITUTE.

On the following morning (September 24th) the party left at 6 o'clock by train to Mestre, en route for Cortina d'Ampezzo in the Dolomite region, to visit the heliotherapeutic Instituto Codivilla for surgical tuberculosis, which is called after Professor Putti's predecessor in the directorate of the Institute Rizzoli. At Mestre motor cars were in waiting to complete the journey by road. Passing through picturesque old towns such as Treviso, with its watercourses, and Vittorio-Veneto, the scene of the final capitulation of the Austrians, into the hill country, the occasional ruins of buildings showed that the war zone had been entered. The latter part of the journey lay among mountain scenery, until Cortina d'Ampezzo was reached, lying at the foot of the great Tofano peaks. Here the relics of warfare consisted of huts and tunnels high up among the peaks. This was the scene of that extraordinary mountain warfare on and around the summits, of which graphic accounts appeared at the time in the English newspapers. For two years this district was occupied by large Italian forces, and cable transport was largely used to supply the guns and troops with ammunition and food. Professor Putti described the great difficulties experienced and the heavy mortality which occurred owing to such accidents as lightning and avalanches. The bare rocks of the Dolomite range are very susceptible to the destructive effects of the weather and falls of rock and stones are frequent.

The Codivilla Institute was visited on Thursday morning. The building in which the hospital is lodged was an Austrian hotel before the war, but it is well adapted to its present uses. It is situated little over a mile north of Cortina in a favourable situation looking due south and with high mountains to the north, those on the east and west not being near enough to prevent the sun's rays from reaching the front of the building for the whole of the winter and the greater part of the summer days. It contains 100 beds, 50 of which have been occupied since January last. The rainfall is heavy, as is usual in such high altitudes (of nearly 5,000 feet), but rainy days are comparatively few; when they or fog occur the mercury vapour

quartz lamp is used. The methods followed are much the same as those in Leysin. Careful meteorological observations are made and recorded, and it is hoped in time to find scientific explanations for some parts of treatment which are at present only empirical. One problem which Professor Putti referred to as needing solution is the question why some cases of tuberculosis do better at the seaside than in high altitudes and some worse. Much patient investigation will be needed to explain this puzzling fact.

In the winter, bedridden cases are exposed to sunshine in the open air as long as the temperature does not fall below 46° F., but ambulant cases are allowed to run about naked in the snow and in the sunshine down to a temperature of 14° F., or 18 degrees of frost.

The results have been good, but as cases should preferably be kept here for two or three years, it is obvious that only a very few of the tuberculous children of Northern Italy can be treated at present.

In the afternoon an excursion was made through a most picturesque part of the region to Misurina and its small lake, by a circuitous north-about route. The return was to have been made by the more direct pass of the Tre Croci, but a bridge on this road having disappeared in the night the outward journey had perforce to be retraced, except by those active persons who chose to walk some nine miles, and were well repaid for their exertions.

On September 26th, the last day of the tour, the association bade farewell to Professor Putti with many expressions of gratitude and regard, and started in motors on the great Dolomite road by the passes of Falzarego, Pordoi, and Costalunga to Bolzano (Bozen). Those who had not travelled this way before could not fail to be struck by the wild grandeur of the scenery, the design and execution of the extraordinary zigzag road, and the skill and coolness of the drivers of the huge charabancs which run regularly along it. At the summit of the passes, such as Pordoi, over 7,000 feet above the sea, the air was felt to be very chilly, in marked contrast to the heat of Bologna three days earlier.

Some stupendous relics of the war were seen, such as a three-storied barrack just below the summit of a ridge over 10,000 feet high, and various other aerie-like buildings. The remains of two front-line trenches, which formerly crossed the road, were still very obvious. During the final run down into Bolzano, through beautiful wooded ravines and glens and among waterfalls and sawmills, the weather broke and heavy rain fell. With this exception the climate had been extremely kind to the tourists.

Opening of the Medical Schools.

KING'S COLLEGE HOSPITAL.

ADDRESS BY SIR DAVID FERRIER

ON

FIFTY YEARS OF MEDICINE.

It is now fifty years this day since I last had the honour of giving the introductory address at the opening of the session of the King's College Medical School. All my colleagues on the Board at that time have passed away; and there are but few here to-day who were present on that occasion. It is not improbable, however, that I may have among my audience the sons or daughters of some of those who were then commencing their medical studies.

Half a century is a long period in one's professional life to look back upon, yet I often find it difficult to realize that so many years have elapsed. It is one of the proclivities—or perhaps infirmities—of age to like to revert to the past; and if I may indulge in this respect for a few minutes, it is not as a *laudator temporis acti*, but in order to draw some lessons which may have a useful bearing on the present and the future.

I need scarcely say that within the last fifty years there have been many remarkable changes in the world in general, and in the world of medicine in particular. At the time of which I am speaking—namely, 1874—Listerism was only in its infancy, and but slowly making way against great inertia, as well as much active opposition. For although in 1867 Lister had been successfully applying to surgery Pasteur's doctrines as to the germ theory of fermentation, his views had not yet been generally accepted, or extensively put in practice. Surgical operations were relatively limited in range, and followed by frightful mortality; surgical wards often reeked of suppuration and sepsis; and many surgeons were still operating with instruments, and in garments, swarming with putrefactive germs.

As late as 1880—three years after the advent of Lister to this hospital—when my late colleague, Professor Gerald Yeo, and I, at a meeting of the British Medical Association, showed that, with antiseptic precautions, the most formidable operations could be made on the brain without risk of the otherwise fatal meningo-encephalitis, there were not wanting eminent surgeons and others who shook their heads incredulously, or expressed their entire disbelief in the germ theory of sepsis.

It is difficult for those of you of the present generation to realize the state of affairs not only in surgery, but in other departments of medicine fifty years ago. Bacteriology was then practically non-existent. We knew nothing of the germs, or methods of culture, of tubercle, cholera, anthrax, malaria, diphtheria, tetanus, syphilis, and a host of others.

With the exception of the Jennerian vaccine—the prototype of all others—we had no other vaccines; and no prophylactic or curative serums, such as those which have practically robbed hydrophobia, diphtheria, and tetanus of their terrors. Internal secretions and vitamins, with their marvellous influence on development, growth, and nutrition, were mysteries entirely unrevealed. Biochemical tests, such as those of Widal and Wassermann, had not been dreamt of. Instruments of precision were few and simple. Except the stethoscope, ophthalmoscope, laryngoscope, and clinical thermometer—the last only then coming into general use—there were practically no other aids to clinical investigation. There were no *x* rays to enable us to illuminate and explore the innermost recesses of the body; and no electro-cardiographs to register every phase of the heart's action.

All these methods, and the transformation of medicine which has been the result of their application, have been invented, or discovered, within the last fifty years—many of them within the recollection of the youngest of you.

Our remedies were for the most part purely empirical. The science of pharmacology was only in its infancy, and we could give little or no reason for our prescriptions beyond the fact that they had been found useful by our predecessors. I could go on adding to the catalogue of things which we did *not* know half a century ago—things which form the very basis of modern medicine—until I fancy I might hear some of you exclaim, "Then what *did* you know?"

Yet it should never be forgotten that, so far as pure observation could carry them, unaided by other than the most simple instruments of precision, the physicians of old have never been surpassed in their delineation of the symptoms and natural history of disease, and skill in prognosis. The names of Sydenham, Heberden, Bright, Matthew Baillie, and many others among our own countrymen, will compare favourably with any of those of the present day. If their theories as to etiology and pathology were often founded on what we can now smile at as crude assumptions, we need not pride ourselves unduly on our superior knowledge.

Considering the transformation, or revolution, that is taking place at the present day in our conceptions of life, matter, and energy, it is not unlikely that someone of my audience, reviewing the progress of medicine fifty years hence, may have to comment in a similar manner on the primitive character of our present-day notions on many problems of health and disease. Still, when all is said, I think, as regards scientific medicine, we may, like the son of Tydeus, reasonably "boast that we are much superior to our fathers."

Now what has been the principal cause of this superiority? Unquestionably, in my opinion, it has been obedience to the illustrious Harvey's injunction to the College of Physicians to "search out the secrets of Nature by way of experiment." It is by the application of the experimental method to the elucidation of vital problems that within the last half-century medicine has been so transformed that its progress has with truth been characterized as a veritable romance. As the late Lord Fletcher Moulton, in his evidence before the Royal Commission on Vivisection, has said:

"No man who knows anything of science has any doubt whatever that the right way to advance knowledge is by experiment. When we are reduced to observation, science crawls. When, and in proportion as, you can use experiment, the science advances rapidly. The more complex the subject is, the more factors there are at work, the more essential the experimental method is, and the most complex of all phenomena are those that relate to human beings." (Royal Commission on Vivisection.)

Since the experimental demonstration of the circulation by Harvey three hundred years ago, almost everything that we know with any degree of certainty with respect to the functions of the body—the brain and nervous system, respiration, digestion, assimilation and nutrition, internal secretion, the action of drugs, morbific agents, and the like—has been gained by experiments on animals, the accidental experiments of injury on man, or the intentional experiments of inquirers on themselves.

By the discovery of the germs, and their mode of transmission, of malaria, yellow fever, and sleeping sickness, regions of the earth formerly uninhabitable have been made accessible to civilization and human enterprise. It has been abundantly demonstrated that animals as well as man can be protected against such diseases as anthrax, tetanus, and glanders; and many other infectious diseases can be prevented, and might be altogether suppressed, if intelligent co-operation could be made to take the place of the dense ignorance, and stupid, not to say criminally fostered, prejudices, which so commonly prevail among mankind.

As to those diseases which, so far as we know, do not owe their origin to infectious germs, what can be considered more marvellous than the powers recently conferred on medicine by physiological experiment on the ductless glands and their secretions? As the late Sir William Osler has picturesquely expressed it:

"No such miracles have ever been wrought by physicians as those which we see in connexion with the internal secretion of the thyroid gland. The myth of bringing the dead to life has been associated with the names of many great healers since the incident of Empedocles and Pantheia; but nowadays the dead in mind, and deformed in body, may be restored by the magic wand of science. The study of the interaction of the internal secretions, their influence on development, upon mental powers, and upon disorders of metabolism, is likely to prove in the future of a benefit not less remarkable than that which we have traced in the infectious diseases." (*The Evolution of Modern Medicine.*)

Osler's prediction has been amply verified within the few short years since his lamented death by that most recent triumph of experimental medicine—the discovery of insulin—the "elixir vitae" to thousands of sufferers, living precarious lives, with fatal coma, like the sword of Damocles, threatening to descend on them at any moment. How this appears to unprofessional eyes may thus be described in the words of Lord Knutsford in the recent debate in the House of Lords on the Dogs' Protection Bill:

"You see a patient come into hospital with large eyes, sunken face, and stooping figure. He is given insulin. It is not a conjuring trick. It is a miracle. In quite a short time the man is bright and happy and smiling again, and his disease is forgotten."

But while we can boast of triumphs such as these, we cannot afford to rest and be thankful. The problems that demand solution are many and urgent. Though we know a good deal as to the characters, mode of growth, and dissemination of many of the infective germs, we as yet know little or nothing of others—the so-called filter-passing germs—and still less any satisfactory method of combating their ravages. Our knowledge of cause unfortunately outruns our ability to prevent or cure. The tubercle bacillus was discovered over forty years ago; and yet, in spite of all our efforts, it slays its thousands every year; and the same has to be said of other diseases of men and animals, which cause incalculable loss of health, wealth, and life. The state of affairs is still worse in regard to diseases of which we know neither the cause nor the cure, such as disseminated sclerosis, progressive muscular atrophy, paralysis agitans, and the like.

Most prominent of all in the eyes of the world at the present moment is the problem of cancer, which unhappily seems to increase as civilization advances. The urgent need for more light, and the triumphs already achieved by scientific research in regard to the infectious diseases, have led to a world-wide campaign against malignant disease, in the hope that combined effort will succeed where individual effort has hitherto failed. Our hopes were recently raised high that here again Toronto had achieved another magnificent triumph, only, however, to be shattered by further examination. We need not, however, despair, only we must guard against being over-sanguine as to the results of investigations of a purely *ad hoc* character. These will no doubt narrow the approach, and pave the way to the ultimate solution; but it is quite possible that the key to the mystery will, after all, be given by some research undertaken for its own sake, or without any obvious bearing on the problem in hand.

Many such instances might be quoted. It would, for example, seem a far cry from a jelly-fish to a human being; yet, as Lewis has recently shown, Romanes's experiments on the bell of the Medusa have furnished the explanation of that most dangerous state of the human heart—auricular fibrillation—and the rationale of its treatment. The history of science affords abundant illustrations of the fact that the most important and far-reaching consequences may flow from apparently insignificant beginnings. There is not a single addition to natural knowledge, physical, chemical, or biological, which does not find its appropriate place in the grand edifice of science and the powers it confers on mankind. The conquest of ignorance is our only sure defence against the diseases and other evils with which we are constantly threatened and assailed.

Yet, though pure science receives much lip-homage, it receives but little general support; and medico-biological research, in particular, not only little support but much ignorant opposition, unless it gives immediate protection against disease, or promises absolution from the consequences of sins against the laws of health and indulgence for future transgressions. One is constantly met with the question, "What is the *practical* object of your proposed research?" If you cannot make this sufficiently plain to the unenlightened you are apt to be regarded as a visionary, out of touch with the realities and needs of the world. This attitude is unfortunately not confined to the laity, but is all too frequently found even in our own profession.

While there is no branch of science which does not bear directly or indirectly upon practical medicine, that which, above all others, most intimately concerns you in your study of disease is physiology—appropriately termed the Institutes of Medicine. It is only by an intimate knowledge of the functions of the various tissues and organs of the body and their interrelations, practically applied in the clinical wards and pathological theatre, that you can appreciate the true nature of disease and the meaning of its symptoms. And it is this alone that can furnish a sound basis of independent judgement, and secure freedom from slavish adhesion to any system or blind obedience to the words of any master.

The practical application of the results of scientific research in all its forms—physical, chemical, or biological—towards the prevention and cure of disease is the duty of our profession. You will see, therefore, that your responsibilities are great, and that in the relatively short period of the medical curriculum you will have no time to waste if you

are to acquire the requisite knowledge to qualify you for your work. Though it is impossible at the present day to be an expert in every branch of science, general practitioners and specialists alike, besides learning the essentials of medical and surgical practice, must gain such acquaintance with the principles and methods of special scientific research as to know how and when they may be made available for the benefit of those entrusted to their care.

Most of you will no doubt engage in general practice at home or abroad, and thus form what has been rightly termed the backbone of the medical profession. Others —probably many of you—will become specialists in one or other of the various departments into which medicine in the natural course of evolution has become necessarily divided. And I need scarcely say that nowhere better than in this highly equipped hospital and school can you be fitted for any speciality that you may choose. Some of you—I hope not a few—will become so enamoured of one or other of the strictly scientific bases of medicine that you will devote yourselves to research, like so many who have attained eminence in science proper, but who began their career as medical students.

It would, I think, be a great misfortune if the increased facilities with which scientific methods have provided us for the diagnosis of disease, such as the *x* rays, electrocardiograph, biochemical, and other tests, should lead to atrophy of the *tactus eruditus*, and other trained faculties of the skilled practitioners of old; or to neglect of the simple or unaided methods of diagnosis, such as percussion, auscultation, and the like. It would not be well if a surgeon were unable to diagnose the existence of a fracture or dislocation without the aid of a radiogram; or for a physician to be dependent on similar aid for the recognition of a consolidation of the lung, or the existence of a tumour in the brain. Some indications, however, have been noted by our examiners of a tendency on the part of the younger generation to neglect the simpler methods, and to rely too exclusively on aids which may not be available at the critical moment. Delicate physical and chemical apparatus are necessary in the clinical laboratory, but the results must be incorporated with those of other methods, and capable of application by the practitioner in the ordinary course of his work. The various methods should supplement but not supplant each other; and as we see clearly only what we are prepared to see, clinical vision should be sharpened rather than dulled by the light of science.

Scientific pharmacology does not necessitate the abandonment of purely empirical methods which long experience has proved to be of value in the relief of suffering. The theories on which they have been based may appear to us fanciful, and we may not be able to give a rational explanation of their *modus operandi*, but it would be foolish to discard them. There are many remedies, now out of fashion, which are still relied on, and apparently on good grounds, by physicians of ripe experience and sound judgement. Nor should the study of the scientific bases of medicine ever be divorced from the most thorough-going study at the bedside. The human body is a much more complex organism than that of the lower animals, and infinitely more so than any mere physical or chemical compound. The agents employed in the treatment of disease do not necessarily act *in vivo* only as they do in the test tube. The living body is, as has been said (Dale), in many ways an essential partner in its own cure. And, more particularly, the psychical side of man—the impulses and emotions by which he is swayed—constitutes a factor which highly complicates the action of all the remedies of the *Pharmacopoeia*.

Ideas and emotions are not mere subjective states of the organ of mind, but at the same time corporeal influences which thrill to the tips of our fingers, and manifest themselves not only in outward expression, but also in modification of the activity of all the vital functions. Though much valuable work has been and is being done in this direction (Lange, Pavlov, Cannon, etc.), we as yet know comparatively little as to the mode of origin, and channels of transmission, of those corporeal influences; but it is certain that the pleasurable emotions, such as faith and hope, *exalt*, while the depressing emotions, such as fear, doubt, and anxiety, *depress* all the vital functions. How to promote the one and combat the other is often more a mark of therapeutic skill than a judicious selection from the *Pharmacopoeia*. This has long been implicitly recognized and acted on in daily life. Prescriptions, apart from any intrinsic value they may possess, are also largely vehicles of suggestion. Everyone knows that a prescription by the eminent physician, Sir A. B. of Harley Street, may have a very different therapeutic value from exactly the same prescription given by Mr. C. D. of Little Pedlington. And there is a grain of truth in the remark by Petronius Arbiter, the cynical courtier to the Emperor Nero, that a physician is "only a satisfaction to the mind."

The influence of suggestion, familiar to physicians from time immemorial, has in recent times been raised to the dignity of a cult or religion, under different names, and following different methods, rites, or ceremonials; and remarkable successes have been claimed by their respective votaries. I have no intention of critically examining the respective merits or demerits of these various methods, but would merely remark that suggestion, however induced, should be kept in its proper place. No amount or kind of suggestion will, for instance, reduce a dislocation or remove a tumour from the brain. Apart, however, from special methods of suggestion, however commendable some may be in certain circumstances, it must ever be the endeavour of the physician to mobilize all the defences of the organism, psychical as well as physical, against the attacks of disease, and for the restoration of health.

It is related of a famous painter, when asked how he mixed his colours in order to produce such brilliant effects, that he replied, "I mix my colours with my brain." Medical practitioners, to be successful, must do likewise with their prescriptions. How to do so is an art—the true *ars medendi*—and, like all arts essentially individualistic, difficult to define, difficult to analyse, and difficult to communicate. But there is one factor within reach of you all—surpassing all others in importance—and that is *a thorough knowledge of your work*. This by itself can outweigh a multitude of defects, and will constitute the best, and most solid, basis of that self-confidence and decision which are so necessary to inspire faith and trust on the part of those with whom you have to deal. This knowledge you can all certainly acquire here if you duly avail yourselves of the splendid opportunities provided for you in this great hospital and medical school.

CHARING CROSS HOSPITAL.

SIR HUMPHRY ROLLESTON'S ADDRESS ON REASONS FOR ENTERING THE MEDICAL PROFESSION.

The introductory address to the students of Charing Cross Hospital was given on October 1st by Sir Humphry Rolleston, Bt., K.C.B., M.D., President of the Royal College of Physicians of London.

After a few words of congratulation to the prize winners and of encouragement to those who on this occasion had not gained the palm, Sir Humphry Rolleston remarked on the advantage in competing for prizes quite apart from the place obtained in the list.

It is (Sir Humphry said) a preliminary canter, and part of the training for the compulsory examinations that await the student at another place; it provides practice in clear expression and marshalling of knowledge in the written paper, and accustoms the candidate to the trial of a viva voce examination when a question on an all-unexpected subject suddenly impinges on an anxiously strained brain and demands an accurate answer.

Discussing next the reasons for entering the medical profession, he said:

Although we have all committed ourselves to the profession of medicine it is not a mere act of curiosity to mention the reasons that may lead up to such a decision;

for although the Rubicon is passed there are many provinces of medicine open from which to choose the particular line of work likely to be most congenial. The reasons attracting men and women to our profession may decide in advance what form of practice or activity they will ultimately adopt, and to these brief reference will be made, but usually the advice not to specialize early has been unconsciously followed.

While one, and certainly the commonest, reason for entering a profession is, of course, to gain the wherewithal to live, this can be much more easily and successfully attained by going in for business or trade, strictly so called, than for medicine, which has been described as a noble profession but a decidedly bad trade. Still undoubtedly many choose medicine with this aim in view, for, at any rate in the past, more members of the healing art gained a living of a sort than is the case among the followers of the Law or the Church; it is true that the prizes are few and the income often small—sometimes, indeed, barely a living wage, or, as it has been called, a "starveling"; before the war it was, I believe, estimated that the average income of the members of the profession as a whole was about £300 a year—though it must have been difficult to arrive at any sum, and then approximately only. Now, with the rise in the cost of living, it must be much higher, possibly £500 to £600 a year. But just at the present moment there is considerable reason to believe that the medical profession is overstocked by those recently qualified; last year the number of new practitioners registered was 2,482, the highest on record; and the number of medical men is increasing more rapidly than the population, so that the rate is approaching one medical man to 1,000 of the population. As the result of the rush into the profession after the war, the universities and examining boards are now at the crest of the wave as regards candidates for the final examination—for example, at the final Conjoint Board examination in July last there were more than 500 candidates up; it is true that they did not all get through; but that the recently qualified are finding it hard to obtain resident posts there is, I fear, no doubt. At the Victoria Hospital for Children, Chelsea, there were, for the two posts of house-physician and house-surgeon vacant last July, 83 applicants, of whom 23, or 27.7 per cent., were men, and 60, or 72.3 per cent., women, and I have heard of sixty candidates for one house appointment elsewhere.

This temporary condition must of necessity right itself in accordance with the laws of demand and supply, and, indeed, this corrective process may have begun already. Last year the entry into the medical profession dropped from 2,000 in the two previous years, and 3,500 in 1919, to 545, which is little more than a third of that (1,500) in the first year of the century. It is interesting to note that in the United States of America there was no evidence of a fall in the 1923 entries, the total—17,808—being nearly 900 more than in 1922. In spite of the limitation of students and the higher entrance requirements enforced at the most efficient medical schools in the United States, the total entries since 1919 have increased at the rate of approximately 1,000 students each year.[1] The contrast between the 1923 entries in the United States on the one hand and Great Britain on the other hand calls for some explanation. Between 1904 and 1919, probably as a result of Abraham Flexner's drastic report on the medical schools in North America (1910), the number of schools fell from 160 to 85, and the number of students from 28,142 to 13,052, so that this event renders the conditions different from those in this country; further, poor students are encouraged and financed by scholarships and loan funds much more than in England, and the American colleges expend from 500 to 1,000 dollars annually on each student in excess of their fees.[2]

Possibly the phenomenal fall in the British entries in 1923 may have been due to more than one cause; but apparently the most important factor is that under the new Regulations of the General Medical Council the student must now postpone registration until, in addition to his examination in general education, he has passed a recognized examination in elementary chemistry and physics; this year's figures will show more truly the state of the entry into the profession. Further, economic conditions—namely, the higher cost of medical education and the accompanying fall in fixed incomes, though neither of these were special to 1923—may by accumulated effect have begun to exert an influence deterrent to entrance into a profession which is not pre-eminent as a method of getting rich quick. There is also a very considerable fall in the entry of women into the profession; whatever the cause, there is no question that 1923 saw a very distinct drop, which contrasts with the war and post-war rise in the number of female medical students. The evidence of overcrowding among the qualified women and realization of the difficulty of obtaining posts when a degree or diploma has been obtained may have warned parents not to encourage their offspring, especially their daughters, to enter our profession.

A not uncommon reason for entering our profession is the accident, so to speak, of environment or heredity. When the father is a medical man the home atmosphere often prepares the son to follow in the paternal footsteps as a normal course of evolution, especially as there may be a practice waiting for him; so without any special ambition or inclination for another walk of life he regards it as a natural family succession. I know of a family with seven generations in succession. This is perhaps a survival or an unconscious imitation of ancient custom, for in very remote times the art of healing was hereditary from generation to generation in the sacerdotal caste. In Ireland until a comparatively recent period the profession of physic passed from father to son, just as did the practice of other arts and crafts, and was the relic of the time when a medical practitioner was attached to the clan or house of a chieftain (Kirkpatrick). On the other hand, a boy or girl may early decide on the physic line and keep to this resolution; the impulse may date from some accidental experience, such as injury or illness and the resulting contact with the striking personality of a medical attendant; Sir William Bowman is said to have been led to take this step by his interest in the treatment of a wound in his hand sustained when experimenting with gunpowder. Sydenham was attracted to the profession he so greatly adorned by the influence of Dr. Thomas Coxe, who was attending his brother, Colonel William Sydenham, in 1646. An allied but apparently curiously infrequent reason is the desire to be in a position to look after one's own disabilities: Elisha Kent Kane (1820-1857), surgeon in the United States Navy, who went on the two American expeditions (1850-51, 1853-55) financed by Henry Grinnell in search of Sir John Franklin, originally intended to be a civil engineer; but after an attack of rheumatic endocarditis he was advised by his friends to take up medicine, on the ground that he would be happier if he understood and so could manage his own case. Interest may suddenly be awakened by the accident of reading a medical book or article, as in the case of Dr. Tertius Lydgate in George Eliot's *Middlemarch*, a portrait known to have been drawn, in part at least, from life. Among those who, like William Hunter, the elder brother of the more famous John, have started life with the intention of entering the Church, but have abandoned that calling for the cure of our vile bodies, was Sir William Osler, who is believed to have been partly influenced in taking this step by reading Sir Thomas Browne's *Religio Medici*.

A few men, paradoxical as it may at first sight appear, take a medical degree without any intention of ever practising; this is not, as sometimes happens in the case of the Bar, from a belief that it is a kind of social distinction to belong to a learned profession, but because they have already decided on devoting their lives to investigation or teaching in one of the sciences, such as physiology, biology, biochemistry, morphology, or pathology, which are so closely bound up with medicine. Such men rightly recognize that their outlook is greatly broadened by

[1] Colwell, N. P.: *Journal of the American Medical Association*, Chicago, 1924, lxxxii, 839.

[2] Myers, B. D.: *Proceedings* of the Thirty-fourth Annual Meeting of the Association of American Medical Colleges, February 28th, 29th, and March 1st, 1924, p. 71.

passing through the whole of the medical curriculum, that as research workers they are better placed to understand the bearing of problems to be solved, and that as teachers of medical students they are thus in a much more advantageous position to deal sympathetically and for the best with future practitioners. In short, the experience gained by passing through the medical curriculum tends to alter the outlook of the teacher of the preliminary biological sciences. Let us contrast the extremes of the groups of teachers—those who know their science only with those who in addition have been through the curriculum—and think for a moment of the difference in the attitude that may be adopted by the two categories of teachers; no doubt much could be said for both; a teacher of the first group may say in his enthusiasm that his function is to teach and examine on the science, whereas one of the other class will consider that his business is to ground future medical men in what he conceives to be necessary to ensure their efficiency.

In the days that were earlier, men sometimes entered the medical profession because of their ambition to be in one of the fighting forces; for when prevented by mental or bodily defect from gaining admission to the executive branch, they fell back on the Royal Naval Medical Service, the Royal Army Medical Corps, or the Colonial Service. Love of travel and of adventure, which can be gratified in the services, is another possible incentive, and there is in addition the material attraction of a pension to fall back on. But the shortage of entries into the services at the present time shows that these factors are no longer operative. Similarly, the number of medical men who now enter the mission field is so small that a desire to be a medical missionary accounts for very few entries into our profession. But how many take up medical work from feelings of real devotion to their fellows, and quietly carry through this high ideal in the ordinary rough-and-tumble of life, it is impossible to guess.

A somewhat unusual reason—at least, there are few such confessions—for adopting the medical, though it is far from unknown in the nursing, profession is disappointment in love. James Macartney, the distinguished professor of anatomy and chirurgery at Trinity College, Dublin (1813-37), when refused by Miss Mary Ekenhead, "determined to adopt the profession of Surgeon in order to harden his heart"; but the course of his love affairs soon turned into smooth waters, and after marrying Miss Mary he became a demonstrator of anatomy to Abernethy.

The factors responsible for taking up medicine may determine the line of practice — general, consultant, specialist, or in the several services of the State—that is eventually adopted. Heredity, in the form of a family practice, is an obvious example of a reason for becoming a general practitioner; early marriage and the need of money, or love of country life, may have the same effect. A bent for research and seeking out "the secrets of nature by way of experiment" of course provides whole-time pathologists, physiologists, and biochemists. Ambition, backed by a certain degree of ability and patience of no small degree, is responsible for most of those who attempt consulting practice; but even when the decision has been made so far, the choice of medicine, surgery, or obstetrics and gynaecology may be determined by opportunity or accident—that is, the contemporary prospects in these departments of practice at the medical school to which the individual is attached. Thus, at one hospital two who had started as general physicians and another who was well known as a pathologist eventually became gynaecologists, and careful calculation as to probable vacancies has been known to settle the choice between medicine and surgery. Interest and technical skill are the natural reasons for adopting one of the special branches, such as ophthalmology, laryngology, otology, orthopaedics, urology, anaesthetics, or dermatology, and there is the mundane advantage that the wait during what has been called the mere bread stage, before butter, much less jam, can be afforded from the rewards, is not so prolonged as in the case of the general consulting physician.

Scotland.

St. Mungo Chair of Surgery in Glasgow.

The curators of the St. Mungo Chair of Surgery at the University of Glasgow have appointed as St. Mungo Professor Mr. Peter Paterson, M.B., C.M., F.R.F.P.S.G., in succession to the late Dr. Robert Kennedy. This chair was established in 1911 in place of the former chair of clinical surgery, and is carried out in association with the Glasgow Royal Infirmary. Mr. Paterson received his medical education at Glasgow University, where he graduated M.B., C.M. in 1891. He later pursued his studies in London, where he obtained the M.R.C.S. After a period of work in various Continental centres, where he devoted his attention to surgery and kindred subjects, he became assistant to the Regius Professsor of Surgery in Glasgow University, Sir William Macewen. He was also appointed to the staff of the Royal Infirmary, where in 1906 he became visiting surgeon. For some years he held the post of professor of surgery in St. Mungo's College, Glasgow. He has gained distinction for research work, having held the Foulis Memorial Scholarship for eminence in pathology, and he was awarded a Weber-Parkes medal for a memoir on immunity in connexion with tuberculous infection. He has contributed many papers on surgical subjects to various journals, and has for many years been recognized as one of the leading operating surgeons and teachers of surgery in Glasgow.

Edinburgh School of Medicine Calendar.

The annual calendar of the School of Medicine of the Royal Colleges at Edinburgh has just been issued for the session 1924-25. This school of medicine is of considerably greater antiquity than that connected with the University, its lectures being traceable back to the year 1505, when the Surgeon-Barbers obtained their charter. The annual average of students who attend classes in this school numbers 900. Of these the greater number are students proceeding to the University degree in Edinburgh, but a considerable number are engaged in studying for one or other of the conjoint qualifications of the Royal Colleges. Students intending to graduate at one of the Scottish universities may, by the Ordinances of the University Commissioners, attend at this school one half of the classes required for graduation in medicine, and many of the students at Edinburgh University avail themselves of this privilege. The present number of the lecturers is forty-two, of whom most deliver courses qualifying for graduation, while some give lectures upon special subjects of medical science. The dean of the school is Dr. John Orr.

Opening of the Sanderson Hospital, Galashiels.

The new hospital for infectious diseases, which has been presented to Galashiels by the trustees of the late Mr. Robert Sanderson, a pioneer in the local tweed industry, who died in 1915, was formally opened on September 22nd. The hospital is situated on the edge of the town, the grounds occupying an area of three and a half acres. The hospital buildings include an administration block of two stories with a basement, a detached pavilion of scarlet fever wards, another pavilion for observation wards, and a third comprising outhouses, laundry, mortuary, heating chamber, and motor house. In the scarlet fever block there are four beds in the men's ward, six in the female ward, and two private wards, each containing one bed. In the observation block there are four wards with two beds in each. In the event of an epidemic extra bed accommodation can be arranged. With the approval of the trustees cases of infectious diseases from the county and burgh of Selkirk will be accommodated in the hospital, and included in the hospital equipment is a motor ambulance. In addition to the title deeds for the hospital the trustees have arranged a feu charter providing for a public right of access between the Selkirk and Tweed roads. Certificates are also included providing for the recovery of the feu duties in perpetuity for the ground on which the hospital buildings have been erected.

The Right Hon. William Adamson, M.P., Secretary for Scotland, who was present at the opening ceremony, drew attention to the new departure, in that a family closely identified with a town had voluntarily come forward to make a most generous provision for a service which the town council had the power, and, indeed, the duty, of providing at the cost of the ratepayer. He hoped that this precedent—namely, that people of influence should deliberately make a provision to benefit the whole of the ratepayers of the area in which they were interested—would be followed elsewhere, not only making it possible for these ratepayers to have modern hospital facilities, but also relieving them of a large part of the cost of such provision. Such an undertaking was a move in the right direction, since the development of modern medicine rendered it easier to maintain an efficient service in a fairly large unit than in a number of small hospitals.

Conference of Scottish Insurance Committees.

The twelfth annual conference of the Scottish Association of Insurance Committees, held in the Town Hall, St. Andrews, was attended by about 200 delegates, under the chairmanship of Mr. George Cumming (Forfar), president of the association. In his presidential address the Chairman stated that they might well be content that the question of the remuneration of panel doctors was now settled for some time to come. He deprecated the fact that the friendly societies had no representative on the Royal Commission appointed to inquire into the working of the National Health Insurance Act. A resolution was later submitted to the meeting, and carried unanimously, that medical service should include at least nursing, specialist, and consultant services. A further motion, to the effect that dental and optical benefits should also be provided for the insured, was carried by a large majority. A considerable amount of discussion took place in regard to a scheme which had been drawn up by the clerk to the Ayr County Insurance Committee for the co-ordination of medical services. It was proposed by this scheme that a new authority should be constituted in each burgh and county, which would be elected in the same way as the education authority, and would receive and administer all Government grants and other sums paid under the Insurance Act for medical benefit. A vote of thanks was passed to the originator of the scheme, which, however, was not adopted.

Glasgow Western Infirmary.

The managers have appointed Mr. J. Mill Renton, M.B., Ch.B., F.R.C.S.Edin., a visiting surgeon to the Glasgow Western Infirmary. The vacancy was caused by the promotion of Mr. Archibald Young to the Regius Chair of Surgery.

England and Wales.

The Manchester Medical Society.

The Manchester Medical Society has published a syllabus of the meetings to be held during the session 1924-25. At the first meeting, on October 8th, at 8 p.m., Dr. A. F. Hurst will give an address on the sphincters of the alimentary canal and their clinical importance. On November 5th a discussion on jaundice has been arranged, and on December 3rd a discussion on chronic backache in women. The January meeting will consider the radiography of the heart, the surgery of the astragalus, and the use and abuse of digitalis. On February 4th the president, Professor G. R. Murray, will speak on twins in health and disease. Further information may be obtained from the honorary secretary, Dr. A. Hillyard Holmes, 26, St. John Street, Manchester.

Post-Graduate Courses.

The South-West London Post-Graduate Association has arranged a series of lecture demonstrations at St. James's Hospital, Balham, from October to December. The first two lectures will be given by Sir James Barr, on October 16th and 17th, and will deal with some of Albert Abrams's methods of diagnosis and treatment. Other subjects treated during the course include sun and artificial light treatment, by Sir Henry Gauvain; the diagnosis of tumours, by Mr. Pearce Gould; medical examination for life assurance, by Dr. F. G. Chandler; and the prevention or early recognition of trouble during child-bearing, by Dr. J. S. Fairbairn. A full syllabus of the courses may be obtained from Dr. R. J. Saunders, 10, Lyford Road, Wandsworth Common. A course of two lectures will be given at the Hospital for Sick Children, Great Ormond Street, on Thursdays, from October 9th to December 11th, inclusive, with the exception of October 23rd. These lectures are free to medical practitioners, and the subjects considered include dacryocystitis neonatorum; the interpretation of blood sugar curves; and acute infections of the nervous system in children. A course of ten lectures on elementary psychotherapy will be given at the Tavistock Clinic, W.C., by Dr. H. Crichton Miller, on Mondays, at 5.30 p.m., commencing on October 13th. The first lecture deals with psycho-physical interaction, and the second with persuasion and suggestion. At St. Mary's Hospital Medical School a special three-day post-graduate course will be held on October 4th, 5th, and 6th. The subjects include chronic metritis and allied disorders; the common cardiac irregularities; diet and disease; the surgical treatment of gastric ulcer; and the medical treatment of colonic toxaemia. The hospitals comprising the clinical school of the University of Liverpool have arranged again to hold lecture demonstrations for practitioners during the university term, the programme being so planned that on each day a demonstration is given by only one hospital. The demonstrations commence at 3.30 p.m., and are largely clinical in character. The first one, at the Children's Hospital, on October 6th, will deal with hare-lip and cleft palate. A short intensive course for post-graduates will be held at the City of London Hospital for Diseases of the Heart and Lungs from October 13th to 17th. The subjects to be dealt with include diabetes and tuberculosis, pneumothorax, electrocardiograph, mediastinal tumours, and the complement fixation test. Fuller details of all these courses will be found in the Diary.

Tuberculosis in Birmingham.

The annual report for 1923 of the chief tuberculosis officer for Birmingham shows that there has been an increase during this year in the number of tuberculous patients who have been treated. This increase is more marked relatively in the case of non-pulmonary tuberculosis, largely in consequence of an increase in the provision of arrangements for treatment. The death rate in the case of both pulmonary and non-pulmonary disease has been practically stationary during the last four years, but whereas the figure for non-pulmonary disease has been appreciably below the corresponding figure for England and Wales, the Birmingham death rate for pulmonary tuberculosis has been above the average. Unsatisfactory conditions as regards employment and housing have militated against preventive work, though considerable help has been available for distressed persons. For the treatment or isolation of cases of pulmonary tuberculosis sanatorium or hospital accommodation is provided for 670 patients, in addition to 140 beds for children suffering from non-pulmonary tuberculosis, and a variable number of beds in hospitals, amounting probably to ten or fifteen at any one time. Fifteen trained nurses are employed, and over 50,000 domiciliary visits were paid during the year. New admissions to sanatoriums numbered 1,831, and there were 31,035 attendances at the municipal anti-tuberculosis centre, of which 17,858 were for treatment alone; 2,618 x-ray examinations were made, representing an increase on the previous year. In connexion with the examination of sputum at the municipal anti-tuberculosis centre the Davis concentration method was applied to 850 specimens which were previously negative after staining by the usual method. Of these, after the first concentration, 40 were shown to be positive, and after the second concentration 5, no positive results being reported after any subsequent concentration. In connexion with the Yardley Road Sanatorium the sedimentation method devised by Ellerman and Erlandsen was used. From 1,016 specimens

shown to be positive by this examination after a negative result had been obtained by other methods, 625 positive results were obtained after the first concentration, 330 after the second, 35 after the third, and 26 after the fourth. With reference to the question of the value of pasteurization of milk, it is pointed out that for some time past 85 per cent. of the milk sold in Birmingham has been treated either by sterilization or by flash-point pasteurization, and the evidence obtained from the local infant welfare centres goes to show that such milk has not caused harm to young infants. Pasteurization, it is claimed, has been of great value in preventing the spread of scarlet fever and other septic infections as well as tuberculosis.

SOCIAL HYGIENE CONGRESS AT WEMBLEY.

A report of the Social Hygiene Congress, held at the British Empire Exhibition, Wembley, last May, was published in our columns of May 17th (p. 875). The National Council for Combating Venereal Diseases, which organized this congress, has now published the papers there delivered, and the volume contains a mass of information which would be of still greater value to those interested in social hygiene if a detailed index had been provided. In his article Sir George Newman gives an account of the action now taken by the Ministry of Health in combating venereal disease; he describes the history of the public organization of the treatment of venereal diseases and the establishment of various schemes, bringing forward statistical evidence in support of his belief that there is a definite and progressive decline of these diseases in this country. After a brief consideration of the three difficult questions of compulsory notification, compulsory treatment, and prophylaxis he summarizes the principles of prevention. Education of the public as to the incidence and dangers of venereal diseases he considers is of prime importance. Secondly, the sources of infection should be reduced by the provision of prompt and skilled advice, and adds: "It is not practicable for Government or any high contracting party to usurp the position of the private medical man in his relation to his patient." Sir George Newman's third principle is the essential importance of avoiding the separation of treatment and prevention; in other words, "every treatment clinic has direct preventive work to do." Sir Leslie Mackenzie has an article dealing with the administrative control of the venereal diseases in Scotland, with special reference to the formulation and administration of official regulations; he concludes that the primary commandment "Thou shalt not kill" has many corollaries, one of which is "Thou shalt not spread disease." Dame Rachel Crowdy gives an account of the international position with regard to prostitution and the suppression of the traffic in women and children. She believes that there is a gradual and definite growth of an international conviction that the white slave traffic must be suppressed at all costs. Some reports received in reply to an inquiry addressed to various nations which had a system of regulation of licensed houses are included in her contribution. She considers that it has been established that the evidence of the effects of such systems are fairly easily obtainable, and that in a short time definite conclusions will be deducible. The section devoted to imperial questions contains reports about the problem of social hygiene in the Dominions received from Canada, Australia, India, Natal, Kenya, Nigeria, and British Guiana. One section is devoted to the discussion of the place that the general practitioner should occupy in the campaign against venereal diseases, and includes papers by Dr. C. E. S. Flemming, Dr. Madeline Archibald, and Dr. Alfred Cox, Medical Secretary of the British Medical Association. The educational section contains two papers of outstanding interest from a practical point of view—one by Sir Frederick Mott on the psychology of adolescence, and the other by Professor J. Arthur Thomson on education and social hygiene.

The congress was organized as a step in the co-ordination of the social problems of the Empire. The Minister of Health was the honorary president, and papers were contributed by representatives of Government departments at home and overseas, delegates from local authorities, and representatives of social welfare organizations and professional bodies.

Correspondence.

THE SURGICAL TREATMENT OF ANGINA PECTORIS.

SIR,—As you point out in a leading article of your last issue (p. 583), several different forms of surgical intervention have been undertaken with a view to relieving the major symptoms of angina pectoris. It is not my purpose, in writing this letter, to discuss the pathology of this grave and painful disorder, but I think it will be clear that we are as yet very far from understanding the manner in which anginal pain is produced or the precise nerve channels involved. In these circumstances surgical interference remains in large part still empirical.

My purpose is to point out that from case reports so far published it is often, I do not say always, impossible to be sure that the surgical destruction of this nerve path or that has had anything to do with the relief of pain experienced. In other words, sufficient data for the empirical conclusion are often lacking. If a patient suffering from angina pectoris is put to bed and is adequately nursed for a period of weeks or months, common experience tells us that often great relief will follow, and this relief may last for long periods of time after the patient resumes his daily occupations. Rest of this kind is part and parcel of the treatment which a patient receives when he comes under the surgeon's hands, and its influence upon the subsequent history of the anginal pain is scarcely considered in most of the reports hitherto published of patients submitted to operation. I do not say that rest is the reason why the pain has disappeared in the cases in which relief has been recorded, but if the influence of rest cannot be excluded *by statements contained in a given case report*—and that is often how the matter stands—then that case report becomes valueless as evidence that surgical interference has played its part successfully. The point is simple and obvious enough; and it might be thought that the exclusion of the effects of rest might be taken for granted. Experience tells us, however, that we should be rash to take anything for granted in such matters; the wish is too often the father of the conclusion where this and other forms of new treatment are concerned. The point is especially deserving of emphasis in the present connexion, not only because of the remarkable relief which rest alone brings to anginal patients, but because the case reports in question so often conspicuously fail to convey a hint that this factor of rest has been taken seriously into account.

It is not my desire to bring forward the point in the form of destructive criticism, but in the hope that future reports of the kind may provide evidence of a conclusive kind bearing on the rest factor.—I am, etc.,

THOMAS LEWIS,
University College Hospital Medical School.

September 28th.

OBSTETRICS AND LOCAL HEALTH AUTHORITIES.

SIR,—Owing to the great advances which have taken place in obstetrics in recent years the present system of administration by the local health authority demands careful consideration. The towns, and by degrees the rural districts, are being supplied by midwives who are highly trained and kept informed as to modern methods by intensive courses of post-graduate lectures delivered each year in various centres.

As a result, a highly skilled body of specialists is gradually emerging. On the other hand, the clinical training of most medical undergraduates is lamentably deficient, nor can the hard-worked general practitioner afford time for post-graduate study of what is, after all, only a branch of his daily work, and in many instances a harassing and unremunerative one. Few facilities for practical work in midwifery are available in British hospitals for qualified practitioners. The difficulties are accentuated by the importance and rapid growth of ante-natal precautions requiring specialized knowledge and involving fresh responsibilities. At present over half of the confinements are attended by midwives, a fact which proves a due appreciation of their services. It remains to be seen whether this

proportion will not increase if the obstetrical training of the medical student is not improved and the rank and file of the profession do not advance with the times.

The inspectors of midwives are under the direction of the medical officer of health for the supervision of midwifery nursing in their respective districts, but take no part in managing confinements. The regulations of the Midwifery Board prescribe that in abnormal cases the midwife must call in a medical practitioner, and in necessitous cases the fee is paid by the local health authority. There is no provision ensuring that the doctor engaged shall have any special knowledge of the subject, nor is he under any official obligation to furnish a detailed report of his treatment, and the medical officer of health has no power to criticize.

I suggest: (1) That in the event of new appointments taking place for qualified medical inspectors of midwives, those candidates who have had special training in practical obstetrics should be appointed, and that their services should be obtainable for cases of abnormal labour or complications in the puerperium; these practitioners would be under the direction of the medical officer of health and their scope immensely widened. (2) That these whole-time officers should also supervise the ante-natal work, which should be a branch undertaken by the obstetrician rather than the child welfare medical officer. (3) That in difficult cases, except in those of urgent necessity, the midwife should be required to invoke the assistance of (*a*) the medical inspector, or (*b*) a practitioner ascertained by some competent authority to be a reliable obstetrician. (4) That in every centre, when possible, the services or advice of an experienced specialist should be available for serious complicated cases.

The importance of the question is manifest. Each year 700,000 children are born in this country. It is difficult, even for the medical profession, to realize the terrible legacies of ill health for mother and child due to unskilful or impatient midwifery. At present the public have no idea of the facts, but they are learning, and it is the duty of those responsible to revise their methods.—I am, etc.,

A. LOUISE MCILROY, M.D., D.Sc.

Royal Free Hospital, Sept. 25th.

TREATMENT OF GOITRE.

SIR,—The editorial article upon the iodine conditions in enlarged thyroid (September 20th, p. 528) is very interesting. In general practice here in Hockley, Birmingham, I have been struck by the fact that the thyroid enlargement has at once regressed under treatment by sodium salicylate. Iodine as potassium iodide, sodium iodide, syrup. ferri iodidi, may have been given by the mouth; liniment. iodi fort. and unguentum iodi denigrescens may have been used also; but sodium salicylate has always been followed by a lessening of the goitre. Bromide may be given occasionally. Especially since National Health Insurance has come in has the good effect of a salicylate mixture been noted.

The mistura sodii salicylatis of the Health Insurance Formulary Group "F" on continuous administration has always been followed by improvement, and usually by cure, unless I am mistaken. Patients are told they must come for over a year, and the mistura sod. sal. is prescribed at once. Some do not continue, but those that do show the great benefit of the treatment. The prescription is:

Sod. salicyl.	...	...	...	...	gr. x
Sod. bicarb.	...	...	...	...	gr. xv
Ammon. carb.	...	...	...	...	gr. iij
Mist. menth. pip.		...	...	...	ʒ ss

Sig., t.d.s.

If this is given with success, where is the iodine? How is its lack made up? Is there always a real lack of iodine?—I am, etc.,

Hockley, Birmingham, Sept. 24th. JOHN W. DUNCAN.

IODINE AND FOOD.

SIR,—The work of McClendon and Hathaway, to which you devoted a leading article in the JOURNAL of September 20th (p. 528), is of very great interest. It is useful to know what vegetables and fruits contain most iodine, and in what parts of them it is stored. Our standard bread and wholewheat enthusiasts will be stimulated to renewed efforts when they know that the part of the grain which contains a slight trace of iodine is the part we give to the pigs.

In districts, however, which are far from the seaboard, or in valleys lying at right angles to the prevailing moist winds, to depend on selected foods as a means of preventing goitre will be trusting to a broken reed. When the soil, and the water which irrigates it, is devoid of iodine, the vegetation which it produces, and the animal life which feeds on that vegetation, will suffer from iodine deficiency. The soil cannot give what it has not got, and in these places iodine must be supplied from other sources.

You say, "The iodine deficiency theory is attractive at first sight, but there are many matters which cannot be explained on this theory alone." It is true we have still much to learn, but we do not know everything about anything; and if the sentence I have quoted is intended to suggest that no practical use ought to be made of the knowledge we possess until all the microscopic flaws in the iodine deficiency theory have been explained away, we may, for a very long time, have to sit and watch thousands upon thousands of our girls blossoming into womanhood with this neck disfigurement and its associated disabilities. In some schools in Derbyshire one girl in every five has a goitrous neck. The evidence we possess that iodine is a safe and certain preventive of goitre is sufficient to satisfy any reasonable mind. The verdict of America is, "That of all diseases goitre is the most easy to prevent," and the experience of Switzerland confirms it.

It will be a lasting disgrace to the medical profession if goitre continues to flourish in our midst. Here in Derbyshire a determined campaign is about to be inaugurated, having for its object the total disappearance of simple goitre. Iodized salt, both for table and household use, is now on the market. Iodized tablets will probably be given in selected schools at weekly intervals; and possibly in some cases the public water supply may be treated.

The claim made by the American investigators that exophthalmic goitre is also due to iodine deficiency contains only a small element of truth. In simple goitre the enlargement is the response of the organ to natural stimulation. Iodine plays several parts in the chemistry of life. It has metabolic, reproductive, germicidal, and toxin-destroying uses, and each department, so to speak, in ever-varying degrees, draws on the thyroid for its requirements. When the combined demand reduces the store of iodine in the gland below a certain level, enlargement takes place. In exophthalmic goitre, however, the stimulant is abnormal and bears no relation to the physiological needs. Moreover, some of the other endocrine glands are whipped up in a similar way, and also increase in size. We can have Graves's disease without any enlargement of the neck, and there is reason to believe that in the early stages of the complaint, if the supply of iodine is plentiful, or if it is administered medicinally, the gland will remain normal in size. I do know that in recent cases the goitrous element can sometimes be made to drop out of the picture by giving iodine. Of course, the real disease remains. The explanation appears to be that in these agoitrous cases of Graves's disease the abundance of iodine enables the gland to respond to the abnormal stimulation without having recourse to enlargement. While in Graves's disease iodine may stop the appearance of one of its most familiar signs, I know of no evidence that would justify its description as a preventive.—I am, etc.,

Chesterfield, Sept. 22nd. J. A. GOODFELLOW.

ALOPECIA AREATA AND STRABISMUS: FAMILIAL GROUPS.

SIR,—Professor Tomkinson has made a most valuable contribution to a problem in which many are interested, in his paper on the above subject in your issue of September 20th, 1924, continuing the special investigations recorded in the JOURNAL of September 16th, 1922. It is becoming increasingly clear that the correlation of a series of defects or peculiarities, which have been noticed by various workers acting independently, is more than accidental, and that we

may look for some common causative element which may explain the association.

This second paper with its careful description of two new groups of cases is of special significance because it takes account of what I have called the "Inman hypothesis." There is, however, little evidence of left-handedness and stammering. Perhaps Professor Tomkinson has not realized that to obtain the association between these factors to which Inman has drawn our attention the family history needs to be more closely investigated. In my paper which he quotes on "Squint and the child mind" (*The Child*, January, 1924) he will see in the tables that left-handedness is much more common in grandparents, uncles and aunts, than in nearer relatives, and that it is not common in the squinters themselves. The object of that paper was to point out that squint in particular was usually associated with some temperamental trait which it was important to recognize, and thus that a valuable clue may be obtained as to the existence of mind disturbances which it is important to correct.

Those who are interested should read Inman's article (*Lancet*, August 2nd, 1924), entitled "An enquiry into the origin of squint, left-handedness, and stammer." They will find there a number of instances of the relation of these conditions to emotional causes. When, however, this term is used it should be realized that any kind of mental trauma, such as that described in the case of Dr. X in Professor Tomkinson's article, may be sufficient to produce a squint. Inman refers to the element of fear and deals with this in connexion with whooping-cough; I would couple with this measles, which more than any other disease is connected by mothers with the origin of squint.

"Hereditary squint" is a term which may have more than one meaning, but in my view it is the temperament which is transmitted which indirectly may predispose to squint or other allied conditions. The association of alopecia areata with squint, left-handedness, and stammering, if, as we believe, it is linked with all three, is not so easy to explain as the interrelation of the other conditions, which may all be regarded as habit reactions.

A hint may perhaps be obtained from the first group of Professor Tomkinson in which the mother of the family had suffered from "anaesthesiae." Anaesthetic patches are a common symptom in certain conditions usually called hysteria, and it may be that the bald patches are due to corresponding interference with the trophic nerve elements of the skin.

It is greatly to be hoped that other observers will follow out the line of inquiry suggested by Professor Tomkinson's paper.—I am, etc.,

London, E.C.2, Sept. 26th. CHARLES F. HARFORD.

TREATMENT OF PUERPERAL SEPSIS.

SIR,—I have read with great interest the correspondence on the above subject, and would like to state the methods I adopt when dealing with this alarming complication.

In the first place, I strongly condemn the use of either a sharp or a blunt curette. If it is certain that the uterine cavity is the focus of infection, I have the patient anaesthetized and placed in the lithotomy position. I then thoroughly examine, so as to exclude the presence of a pyosalpinx. I then insert a speculum and thoroughly cleanse the vagina with plain water. I then take an intrauterine swab, for examination and autogenous vaccines. I then examine the uterine cavity without damaging the wall, and with the gloved finger alone, removing any purulent debris (such as pieces of membrane and blood clot) which may be present. I then give a large intrauterine douche (lysol). I then seize the cervix with a vulsellum and thoroughly swab the whole of the interior of the uterus with pure tincture of iodine. Lastly, I swab the vagina and perineum with iodine and give an intramuscular injection of pituitary extract. The patient is then returned to bed and, as soon as possible, placed in as upright a position as is compatible with comfort.

I have had excellent results with this method, and am placing it before your readers either as a help or for comment. If the condition does not rapidly improve I give subcutaneous injections of streptococcal polyvalent serum—25 c.cm. every twelve hours for three doses—and then, if necessary, the autogenous vaccines made from the swab.—I am, etc.,

Dunstable, Sept. 20th. D. A. BLOUNT.

CELLULOSE ACETATE.

SIR,—An article headed "Acute poisoning by fumes from cellulose acetate," by Dr. Godfrey Carter, in your issue of September 13th (p. 456), has no doubt given rise to considerable misconception in the minds of those readers who are not intimate with the properties of cellulose acetate.

First, cellulose acetate is a solid substance resembling ground coco-nut in appearance, and under ordinary atmospheric conditions cannot possibly "fume."

Secondly, cellulose acetate is a definite chemical substance made by combining cellulose (cotton) and acetic acid; it is most certainly not a mixture of the various organic liquids mentioned. It is not poisonous, and therefore cannot have caused the symptoms described.

Thirdly, to put the matter in its true perspective it should be explained that cellulose acetate, like collodion or resin, can be dissolved by certain volatile liquids like acetone, and such a solution, if spread out and allowed to evaporate, will leave a transparent harmless film of cellulose acetate. Sometimes, however, in order to cheapen the solutions, organic diluents such as methyl alcohol or benzine are added; also, to ensure clear films under all atmospheric conditions, it is customary to add small quantities of "heavy" solvent. Originally tetrachlorethane was used for this purpose in aeroplane dopes (that is, solutions of cellulose acetate used for tautening and waterproofing aeroplane wings), but its use was prohibited by the Home Office in 1916, following the cases described by your correspondent. Tetrachlorethane was replaced by benzyl alcohol, another "heavy" solvent for cellulose acetate, having incidentally local anaesthetic and antiseptic properties. Since then aeroplane dopes have been quite safe.

In the particular case under discussion it is therefore clear that cellulose acetate was not the poisonous ingredient of the solution. Tetrachlorethane may possibly have been present. The acetone found in the urine was probably absorbed as such by the system, but was not necessarily connected with the cyanosis. If benzine or methyl alcohol or both were present as diluents they may have been contributory factors.—I am, etc.,

SIDNEY A. WELCH, B.Sc., A.I.C.

Spondon, near Derby, Sept. 22nd.

SIR,—Dr. Godfrey Carter's article contains several inaccuracies. He attributes to cellulose acetate noxious properties of which that body is entirely innocent. Cellulose acetate is non-poisonous, very stable, odourless, and non-inflammable, and indeed cannot emanate fumes.

Mentioning some of the chemical substances with toxic properties used during the late war, Dr. Carter states:

> "Among them I would name trinitrotoluene and cellulose acetate. The latter is extensively used as a varnish for aeroplane wings. It is a mixture of benzine, acetone, methylated alcohol, and tetrachlorethane, forming a colourless liquid which gives off a heavy pear-like odour."

This is an extraordinary statement, as cellulose acetate is in no sense a mixture of the substances mentioned. It is not a liquid but a solid, bearing a strong resemblance to grated wood-pulp. It is a stable compound, obtained through the action of acetic anhydride and acetic acid on cellulose (cotton or wood-pulp), and its name indicates its composition: it is a combination of cellulose with acetic acid.

The writer of the article incriminates cellulose acetate, whereas it is the solvents employed to make an acetate of cellulose varnish which possess the toxic properties. A mixture of benzine, acetone, methylated alcohol, and tetrachlorethane is *not* acetate of cellulose, although such a mixture might be used to dissolve the latter body.—I am, etc.,

London, S.W., Sept. 23rd. M. T. CALLIMACHI, D.Sc.

SIR,—I read in your issue of September 13th an article on this subject which raises points of orthopaedic interest. The technique of cellulose splinting without preliminary plaster cast, which I advocated in the *Lancet* and brought to the notice of the British Medical Association Orthopaedic Section at Bradford, was based on work for over a year on more than fifty cases without any ill effect to any patient or myself or others who assisted at the work. May I also point out that the solutions 25 and 26 I use from the British Celanese, Limited, do not contain tetrachlorethane as the writer supposes. Sir W. Willcox's paper in the *Lancet* (1915) and also Dr. Lee's (*Lancet*, 1916) were on poisoning purely due to tetrachlorethane, and jaundice was a constant symptom. The experimental work of Willcox on animals with cellulose acetate in solvents like acetone, benzene, methylated spirit, and in tetrachlorethane respectively, showed that the last solvent caused severe drowsiness. Being a heavy spirit tetrachlorethane accumulates close to the ground and may cause toxic effects in certain susceptible individuals. By an extractor and electric fan such accidents can be avoided.

Cellulose acetate itself is a non-poisonous substance. It is cotton dissolved in acetic anhydride washed free from acid, shredded and ground. The solvents in the solution I advocate only contain acetone, alcohol, and benzol. This has been verified from the makers this week. The word "dope" used during the war was essentially for tetrachlorethane preparations. The Celanese Company assure me they have had no reports of any bad effects from the use of solutions 25 and 26, which are also made use of for artificial limbs and in artificial silk weaving.

As to my personal experience, I have made all the splints myself for children and adults of practically all the joints of the body, and for immobilizing bilateral phthisical chests, without any toxic effect on the patients. Only two of the nurses who assisted me had attacks of slight headache. None of the others had any headache, as I work with an electric fan in a well ventilated room. To get over the odour of acetone we used to wear a face-mask, which we discontinued. It can be rendered less noticeable by dilution with camphor or other substitutes. Regarding the possibility of acetone being the agent of poisoning, the strength used is less than that in use for celluloid splints as made at Alton or Carshalton. Through the courtesy of Dr. Pugh I personally witnessed his technique, and he also takes the usual precaution to aerate the room, etc. Occasional diarrhoea and indigestion in one of his nurses were the only ill effects.

I notice that in Sheffield vaseline was used, which I did not advocate. I use oilsilk stitched tightly next to the skin inside the vest to prevent any absorption of fumes by the body; also the celastoid film before bandaging and painting with solution adequately protects the patient. The dexterity one soon acquires completes the cutting stage of the splint, especially in a child, in fifteen or twenty minutes. In fact, a few layers are quite enough to maintain the mould, which can be completed out of the body at leisure.

Those who have watched the celluloid process of splint-making cannot but admit the direct method is simpler and more economical. I therefore maintain that the Sheffield experience of temporary coma with acetonuria was one of exceptional susceptibility in a child probably weakened by tuberculous disease. Individual idiosyncrasy is a factor which must be prepared for in other lines of work. Dr. Martin of Leasowe reports occasional acidosis in the Surgical Tuberculosis Hospital.—I am, etc.,

Leeds, Sept. 26th. Z. P. FERNANDEZ, M.D., D.P.H.

THE VALUE OF FRUIT AS A FOOD.

SIR,—"S. J. T." (in your issue of September 20th, p. 542) asks for some practical advice as to the nature and amount of the constituents of a fruitarian dietary, and to what extent the usual porridge, meat, milk puddings, etc., are to be replaced.

In the first place, I would refer him to the investigations and observations of Dr. Jaffa, Professor of Nutrition in the University of California.[1] He showed that a vigorous university student, aged 22, and a prominent athlete, maintained his nitrogen balance in equilibrium upon a daily diet of either 5½ lb. grapes, 6 oz. walnuts, and a little granose; or 4¼ lb. apples, 8 oz. dried figs, and 4¾ oz. walnuts; or 3½ lb. apples, 9⅓ oz. dates, 6 oz. peanuts, with a little milk, olive oil, and tomato; or 5½ lb. pears, 7 oz. walnuts, a little granose and milk; or 16 oz. walnuts, 18½ oz. prunes, and 18 oz. oranges. From this it is clearly evident that the ordinary idea that if a man gives up meat he must eat a great deal more "to make up for it" is a fallacy.

The ordinary dietary of people in civilized communities is in excess of their requirements, and one of the most valuable methods of preventing the excess of the protein intake is to put a patient upon a fruitarian dietary. Professor Jaffa observed, too, that in two fruitarian children of 6 and 9 their thoroughness of digestion and absorption was equal to that of an ordinary adult upon a mixed diet, in that they digested 80 per cent. of the fibrous cellulose.

My own observations upon several thousands of patients who were ill, and of people who were well, has been that the immediate and sudden substitution of a fruitarian dietary has been generally beneficial, and in a high percentage of cases markedly so. The advice that I have found the simplest to give where patients had to feed at home was simply to continue their ordinary dietary, but omitting all flesh foods and adding a daily dish of salads with oil and vinegar, and a plate of any fruits in season. Specifically I have found it generally helpful to advise 1 lb. of raisins, ½ lb. of cheese, a couple of eggs, and 1 lb. of nuts per week. The nuts should be ground in a mill and the raisins should be soaked in cold water for twenty-four hours.

The general effect of such a dietary is to increase the alkalinity of the blood, decrease the acidity of the urine, replace constipation by a normal functioning, and slightly increase diuresis.—I am, etc.,

London, W., Sept. 23rd. JOSIAH OLDFIELD.

TREATMENT OF FROST-BITE.

SIR,—In modern textbooks of surgery, written or edited by British surgeons, certain subjects of which the authors have little or no experience must be included if the book is to embrace this comprehensive subject. Naturally information with regard to these subjects must be gleaned from other textbooks if no authoritative article has appeared in recent literature. Consequently, one new textbook follows another, often repeating the same old story more or less paraphrased. Thus, one sees the treatment of frost-bite almost similarly dealt with in the latest edition of Choyce and Beattie's *System of Surgery* and in Cantlie's *First Aid to the Injured*. In both it is suggested that the frost-bitten part should be rubbed with snow, ignoring the fact that a frost-bitten nose or other extremity is anaesthetic, and easily abraded or scratched by grit in the snow or even by a hard fibre in the glove. Again, snow in the neighbourhood of the assumed conveniently warmed room is almost certainly contaminated; also, the act of picking up the snow will result in wetting the gloved hand, and in the presence of moisture the fingers will soon share in the frost-bite.

In the late British expedition to North Russia it was found necessary to issue orders to medical officers and combatants forbidding men adopting these measures. Alternative suggestions for treating early frost-bite were at the same time circulated. These suggestions were drawn up after, I believe, consulting Majors Marshall and Macklin, both of whom had had experience as medical officers to antarctic expeditions. As regards the treatment of frost-bite, Lieut.-Colonel D. C. L. Fitzwilliams, one of the authors of Choyce and Beattie's *Surgery*, read a paper in Archangel to the allied medical officers on the use of paraffin in the later stages.

It is time that British textbooks on surgery scrapped these dangerous and ridiculous suggestions, and instead gave information as to prophylaxis and early and late treatment of a condition which, if neglected, frequently results in serious maiming.—I am, etc.,

T. H. RICHMOND, F.R.C.S.Ed.

Stoke-on-Trent, Sept. 28th.

[1] Bulletin 132, U.S. Department of Agriculture.

MEDICAL OFFICERS AND CONSULTING FEES.

SIR,—Dr. Barford tells your readers that it has been his custom in the past to reply to remarks from those only who sign their names. I cannot help feeling that Dr. Barford's friends, if not Dr. Barford himself, will regret that he departed from his custom on this occasion. Such argument as can be extracted from his letter is, of course, all in favour of my contention. I quite agree with him and with "Whole Time," in your issue of September 20th, that lay committees have sometimes appointed inexperienced young graduates to these responsible posts. This all needs putting right. But will the recommendation of the Representative Body at Bradford help or hinder in the process?

With regard to fees, I can assure Dr. Barford that I do perhaps a hundred free consultations for every one that involves a fee. But I am not prepared to relinquish the right to take a fee, and a substantial one, when offered me by another medical man who calls me into consultation concerning a private case outside my official duties.

In the matter of anonymity, I believe the Ethical Committee of the Association would agree with me in thinking that letters such as this and my former one are better unsigned. Doubtless, Mr. Editor, you will see to it that neither Dr. Barford nor I abuse the hospitality of your columns. Such action as I can take within my Division of the Association will not be taken anonymously.—I am, etc.,

September 27th. TUBERCULOSIS OFFICER.

GALL STONES AND CANCER.

SIR,—One of your correspondents last week, being satisfied that certain "brilliant experiments" have indubitably demonstrated that cancer can be caused by simple mechanical irritation, thought it only remained to show *how* mechanical irritation can produce cancer, and then the tale would be told. When the premisses of a proposition are wrong the conclusion is also wrong; therefore it cannot possibly be shown *how* irritation of any kind can produce cancer, despite the most "brilliant," and equally unnecessary, experiments. That cancer *follows* mechanical irritation of all kinds no one has ever doubted. Irritation has always been closely associated with the disease, although it has not been found to precede it in all cases.

Cancer has never been *caused* by mechanical irritation, and cannot be, because it is a specific disease. This is proved by the fact that it is self-infective and transmissible from one individual to another. Its transmissibility is proved by countless successful laboratory experiments on the lower animals, and by observed cases in human beings, both directly from one to another, and indirectly by inanimate objects.

At the same time irritation, from whatever cause, is a most potent predisposing factor, and that is its role. It prepares the soil most admirably for the reception of the causal agent, just as irritation of the soil by ploughing, harrowing, etc., prepares land for the reception of seed; but if wheat, for example, is not sown, there will be no crop, however thorough the preparation has been. So with cancer, unless the causal agent is present, there will be no disease, however great the irritation.

Before any alleged cause of a disease can be accepted as the true one, it is imperative that it shall be present in every case, wherever occurring, without exception. Since cancer is as truly a specific disease as leprosy or tuberculosis, it is obvious that the cause must also be a specific one and present in every case. All specific diseases are caused by toxins generated by their respective specific micro-organisms, and therefore it is only reasonable to assume that cancer is caused by the toxin of a micro-organism. Has any such been discovered? Many observers have asserted that they have discovered one—for example, Scheurlen, Doyen, Jackson Clarke, Ford Robertson, Young, and lately Glover of Toronto.

Glover asserts that he has not only discovered a micro-organism which he believes to be the cause of cancer, but he has cultivated it and found it to fulfil, in its entirety, the law of Koch, and *this has never been done before*. He has gone further, and has produced an antitoxin which he has found successful. On July 9th last he addressed the Clinical Association of Philadelphia, at which meeting were present 700 medical men from the United States and Canada. He stated that he had been able to isolate from every type of carcinoma a specific micro-organism which, when inoculated into healthy animals, produced the disease. Afterwards he had been able to recover the organism from these animals, and had been able to immunize healthy animals against the disease. From the blood of a large percentage of cancerous patients he had obtained pure cultures. He described the organism, which is a bacillus. It forms spores like cocci, and is motile. It produces a toxin which induces the remarkable proliferation of cells so characteristic of cancer. This toxin he had injected into healthy horses, and from them he had prepared an antitoxin in the same way that diphtheria antitoxin is prepared. He exhibited under the microscope the living organism in the various stages of its life cycle.

At the same meeting Dr. Warmuth of Philadelphia gave an address confirming Dr. Glover's discovery and experiments, all fully completing Koch's cycle of events. He had experimented with Dr. Glover's antitoxin for more than eighteen months with very gratifying results. He had succeeded in making blood tests, found to be reliable in 100 per cent. of cases, by which it will be possible to recognize the disease at its very beginning, even before any local manifestation. The antitoxin was not claimed to be a "cancer cure" but a treatment for cancer which is remarkably successful. He enumerated many cases of successful treatment, entering into details of exhibition of the serum, dosage, etc.

I would suggest that your correspondent direct his attention to the really brilliant experiments of Dr. Glover, which have had such successful results, and then he will not have occasion to consider impossibilities.—I am, etc.,

Driffield, E. Yorks, Sept. 27th. A. T. BRAND, M.D., C.M.

ALCOHOL AS A NARCOTIC POISON.

SIR,—I fear that until it is realized that it is in the abuse of anything that poisonous results follow, the point will never be settled. Many of our everyday foods and drinks may as truly be regarded as noxious when over-indulged in. Nothing more surely poisons than too much meat eating, over-smoking, and so on.

Alcohol in its proper sphere is a useful and refreshing adjunct to our internal economy. I admit that severe penalties must be meted out to fools and reckless people who endanger the public. The worker likes his glass of beer or his pint, and is better and happier for this; others who can afford it benefit by whisky and soda—but the price!—I am, etc.,

September 1st. VOBISCUM.

The Services.

CIVIL CONSULTANTS TO THE NAVY.

THE following civil consultants to the Navy have been recently appointed by the Admiralty:

Sir Humphry D. Rolleston, Bt., K.C.B., M.D., P.R.C.P., to be Consulting Physician to the Royal Navy.

Arthur Edmunds, C.B., M.S., F.R.C.S., to be Consulting Surgeon to the Royal Navy.

C. Hubert Bond, C.B.E., M.D., D.Sc., F.R.C.P., to be Consultant in Mental and Neurological Diseases to the Royal Navy.

VOLUNTARY AID DETACHMENTS.

THE scheme for voluntary aid detachments, which has been approved by the Army Council, is designed to supplement the medical services of the naval, military, and air forces in the event of war or other national emergency in any part of the world. On the outbreak of war the personnel of the detachments, which are a technical reserve of the forces of the Crown, would be required for motor ambulance convoys, ambulance trains, general, naval, military, and air force hospitals, auxiliary hospitals, rest stations, hospital ships, convalescent homes, command depots, entraining, detraining, embarking and disembarking sick and wounded.

Under the War Office, which is the supreme authority in the movement, a Central Joint Voluntary Aid Detachment Council has been formed, with administrative and executive powers within the limits of the scheme.

The position with regard to Wales has been fully considered, and the council has appointed a Welsh committee with full powers to act on its behalf. Major-General Lord Treowen, C.B., C.M.G., is chairman, and Sir Herbert D. W. Lewis, K.B.E., secretary. Both are members of the central council.

Nominations submitted by the Territorial Army Associations for appointment as county controllers, as agreed to by the Order of St. John and the British Red Cross Society, were confirmed, and provision was made for the appointment of assistant county controllers, one to be nominated by the order and one by the society.

The county controller is the chief executive officer for voluntary aid detachments in the area. He is appointed by the association in agreement with the order, society, and council.

Voluntary aid detachments may consist of either men or women, but not of both. They are divided into two classes—mobile, to go anywhere; and immobile, to work in the neighbourhood of their own homes. Every member of men's and women's detachments must pass an annual efficiency test, and all members must attend the annual inspection

Obituary.

SIDNEY MARTIN, M.D., F.R.C.P., F.R.S.,

Senior Physician, and Professor of Clinical Medicine, University College Hospital.

We had to record with regret last week the sudden death, on September 22nd, of Dr. Sidney Martin, renowned for his pioneer work in experimental pathology.

Sidney Harris Cox Martin was born in Jamaica on April 8th, 1860, and was educated at University College, London, and in Vienna. He obtained the diploma of M.R.C.S. in 1882, and in 1883 graduated M.B., B.S.Lond., winning the university scholarship in medicine and taking honours in surgery; he proceeded M.D. in 1884. In 1885 he obtained the M.R.C.P. diploma, and in 1891 was elected F.R.C.P. His early appointments included those of pathologist, curator of the museum, and medical tutor at the Middlesex Hospital and pathologist and registrar to the City of London Hospital for Diseases of the Chest.

In 1890, when Dr. Martin was assistant physician at both University College Hospital and the Brompton Hospital for Consumption, a Royal Commission was appointed to investigate the effect of food derived from tuberculous animals on human health, and the circumstances and conditions with regard to the tuberculosis in the animals concerned. Dr. Martin was requested by the Commission to undertake an inquiry into the influence on lower animals of food of tuberculous origin. A very careful and exhaustive plan of research was devised, including both inoculation and feeding experiments, and his lucid report takes up 96 pages of the appendix to the first report of the Commission published in 1895. Dr. Martin's main conclusion, that food from a tuberculous source endangered a healthy animal, was held by the Commission as proved. He also laid emphasis on the probability that healthy tissues in a tuberculous animal would often be contaminated by the butcher's instruments conveying infection from elsewhere during the processes of flaying and dressing. In his feeding experiments tuberculosis did not result when the meat used was taken from cows with mild or moderate degrees of tuberculosis, and the deduction was drawn that it was conceivable that a considerable part of an infected animal might be used for food if the tuberculosis was localized, and sufficient care and discrimination were exercised in the slaughter-house; it was held, however, that in cases of generalized tuberculosis all the meat should be condemned. Taking into consideration Dr. Martin's experiments and certain other researches, the Commission came to the conclusion that probably an appreciable part of human tuberculosis was traceable to food. In the same year in which the report was published Dr. Martin was elected a Fellow of the Royal Society.

Dr. Martin had a prolonged and intimate association with the Royal College of Physicians. In 1892 he delivered the Goulstonian Lectures on the chemical pathology of diphtheria compared with that of anthrax, infective endocarditis, and tetanus (British Medical Journal, vol. i, 1892). In these lectures he emphasized the importance of further investigation of the poisonous products of the infective organisms. In 1898 he delivered the Croonian Lectures on the chemical products of pathogenic bacteria considered with special reference to enteric fever (British Medical Journal, vols. i and ii, 1898). In 1915 he delivered the Lumleian Lectures on non-ulcerative infections of the colon. He was a member of the Joint Committee of the Royal Colleges of Physicians and Surgeons in charge of the research laboratories on the Thames Embankment from 1901 to 1905. He was an examiner in medicine for the Joint Board of the Royal Colleges from 1907 to 1910, a member of the Council of the Royal College of Physicians in 1910-11, censor in 1915-16, and representative of the College on the Senate of the University of London in 1919. He was one of the original representatives of the College on the Imperial Cancer Research Fund from its foundation in 1902 until his death, and he became chairman on the retirement of Sir William Church last year. He was a member of the Advisory Committee of the Royal Colleges, known as the Committee of Reference, appointed in March, 1916, with reference to members of the staffs of hospitals in the metropolitan district required for service in the army, and was chairman of the hospitals appeals subcommittee.

Other addresses delivered by him included the Lettsomian Lectures in 1909, on functional diseases of the stomach and intestines (British Medical Journal, vol. i, 1909), and in the same year he delivered the Hunterian Lecture before the Hunterian Society, on certain infective processes in the intestine, reported in our columns (vol. ii, 1909).

Dr. Martin was formerly a research scholar of the British Medical Association, and some of his earlier researches were included in a paper on the pathology of the proteids of the body, read before the Section of Pathology of the British Medical Association in 1890, and published in our columns (vol. i, 1891). He was secretary of the Section of Pharmacology and Therapeutics of the Annual Meeting of the Association in 1883 when it met in Glasgow, and vice-president of the same Section at the Annual Meeting in Nottingham in 1892. In 1895 he produced a *Textbook on Functional and Organic Disease of the Stomach*, and then, turning his attention to the antitoxin treatment of diphtheria, published two papers in our columns (vol. i, 1896, and vol. ii, 1898). In 1903 he published a *Textbook of General Pathology*, which was not only justly popular as a compendium for students, but also for its lucid and complete summaries of various subjects. He contributed accounts of tuberculosis and poisoning by food to Allbutt's *System of Medicine*, and other articles by him are published in *Quain's Dictionary of Medicine* and Gibson's *Textbook of Medicine*.

A Tribute by a Colleague.

"Men in great place are thrice servants—servants of the sovereign or state, servants of fame, and servants of business."

By the sudden and unexpected death of Dr. Sidney Martin British medicine has suffered an irreparable blow and University College Hospital has lost an ideal physician. He certainly was a man in great place; he knew it, but did not publish the fact on the housetops. To have served on two Royal Commissions on Tuberculosis and to have held office on the Imperial Cancer Research Fund alone prove that he was a servant of the sovereign or state; to have published most important papers on scientific medicine, to have delivered Goulstonian, Croonian, Lettsomian, and other public lectures, and to have held the professorship of pathology in University College and the lectureship in medicine at University College Hospital Medical School, prove that he has been a servant of fame; and to one who has had the privilege of working with him for years on the staff of a hospital which has gone through unique vicissitudes he will always remain the incomparable servant of business.

It seems unbelievable that this quiet, companionable man, who could play such excellent golf, should also be able to discharge so successfully the difficult tasks of scientific investigator, of practical teacher of medicine, of superb chairman of scientific or business committees, and of successful consulting physician. During the war he discharged the exacting duties of his own and others at University College Hospital, and worked assiduously in the difficult work at the Third London General Hospital, and at the same time and without remission served upon important and exacting committees of the Royal College of Physicians.

Then came the period of reorganization at University College Hospital which followed after the war. When others felt resentment at much of the change which was said to be imperative Sidney Martin faced the new position, and by his common sense and adaptability made rough ways smooth, even to returning to take his share, as a full physician of many years' standing, in the work of out-patient physician; indeed, he took a leading part in the curious but most salutary change by which all physicians to the hospital should have charge of in- and out-patients.

Medical students are notoriously good judges of the members of the staff of their hospitals; Sidney Martin got through the ordeal from first to last as the "great little man," the sound physician who had no axe to grind, and impressed the patients, nurses, and students with "quiet confidence" in his skill and good judgement. None would

claim that he was brilliant as a lecturer or teacher, but all sought his assistance in difficulty, knowing that beyond his opinion there was no other.

University College Hospital has been fortunate in the past in its possession of devoted sons who have worked for the good of the place, and has never been more faithfully served than by Sidney Martin: no one has given more of his best, and, must it be confessed, no servant of the sovereign or state, of fame, and of business had received less public recognition; his high character and superb abilities ran in even harness from the beginning right up to the end. The one stimulus he seemed to ask for was the work in front of him, however arduous, and not the reward so many who worked with him hoped would follow upon his labours for the institution, whose high principles he had so close at heart. Reward—and it is extremely doubtful whether he needed any other than the right to enjoy the good things already allotted to him—was not his object. It was sufficient to him to have commanded the respect and esteem of his peers in science and generations of "University" men. This was fully shown by the large and representative attendance at the memorial service, held last Friday at the Church of St. Marylebone for this "man in great place," whose character owed so much to a rich blend of honesty and kindliness.

DANIEL BIDDLE, M.R.C.S., L.S.A.,

Kingston-on-Thames.

Mr. Daniel Biddle of Kingston-on-Thames, who died on September 14th at the age of 84, was a man of very varied attainments. He was a son of Lieut.-Colonel Biddle of the Madras Artillery, was born in Gloucestershire, and educated at Taunton. He studied medicine at the Somerset County Hospital and at St. Thomas's Hospital, London, where he was house-surgeon in 1862. He then became a general practitioner at Kingston-on-Thames, and carried on a large practice for over fifty years. He was also well known as a mathematician, and for some years was mathematical editor of the *Educational Times*. His interest in statistics led to his being asked to assist in the preparation of the report by the Statistical Committee of the General Medical Council in 1885; and the statement in that report, that the Registrar had "availed himself of the valuable co-operation of an able and accomplished statist," refers, no doubt, to Mr. Biddle. Further reports were issued in 1886, and the extraordinary fullness of these and of the tables which were published with them in the minutes of the General Medical Council show how enormous must have been the work of compiling the statistics.

Mr. Biddle took an active part in opposing the dual system of notification embodied in the Infectious Diseases Notification Act of 1889; he helped to form the Thames Valley Medical Association, and was interested in the work of the British Medical Association. In addition to his medical activities, Mr. Biddle found time for interest in aeronautics, and invented a balloon; he wrote pamphlets on genealogical and theological subjects; he was a strong advocate for legalizing marriage with a deceased wife's sister; he wrote many articles on the question of harnessing the tides; he published a system of shorthand.

Mr. Biddle has been described as a doughty fighter in any cause that he took up. Withal he retained the affection and esteem of his many patients; while the variety of his interests and activities must have given him a broad outlook on life and have increased his power in the practice of medicine.

Dr. Patrick James Quinlan, who died on September 6th, received his medical education in Dublin, where he obtained the diplomas of L.R.C.P.I., L.R.C.S.I., and L.M. in 1891. Dr. J. Mills, the resident medical superintendent of the Ballinasloe District Asylum, writes: It is with the deepest regret that his colleagues in the county of Galway heard of the death of Dr P. J. Quinlan, which occurred with tragic suddenness on the evening of September 6th. He had been engaged in the heavy duties of a large practice and was walking home, when he suddenly collapsed, and died soon after. He had been for some time in charge of the Kiltormer dispensary district, and had held the post of assistant medical officer of the Ballinasloe District Asylum, after which he was elected, some thirty years ago, to the Athenry dispensary district, where his kindly nature and genial manner rapidly secured for him an unassailable position and hosts of friends. Always zealous and conscientious in the discharge of his duties, he won the approbation of the higher officials of the Local Government Board, and he associated himself in his spare time with the social life of the district. He was a prominent and popular member of the famous Galway Blazers Hunt, and in his time trained many good horses. In other forms of sport, such as shooting, tennis, and croquet, he was also well able to hold his own. He was a member of a well known Tipperary family, and his house was a centre of hospitality. Great sympathy is felt with his widow, who is the daughter of the late Dr. Morris of Kilkenny, and his three young children. His high ethical sense endeared him to his colleagues, who often profited by his wide professional knowledge, and now miss and mourn a high-minded gentleman and a loyal friend.

Dr. Frederick Arnott Storr died on September 13th at his residence, Knowle Cottage, Mirfield, at the age of 59. He graduated B.A.Oxford in 1889, and after studying medicine at Leeds obtained the L.S.A. diploma in 1894, and the D.P.H. in 1896. Having held the post of assistant house-surgeon at Halifax Infirmary he practised for some years in Brighouse, and removed later to Mirfield. In 1910 he was appointed medical officer of the Halifax Rural District Council and retained this appointment to the date of his death. He was medical superintendent of the Elland and District Small-pox Hospital and honorary surgeon to the Mirfield Memorial Hospital, and during the war was commandant of the Military Auxiliary Hospital. He was a member of the British Medical Association and a Fellow of the Society of Medical Officers of Health. Severe illness in 1921, and again in the autumn of last year, necessitated amputation of the right thigh, and this misfortune led to an appeal being made on his behalf to members of the British Medical Association, which was published in our columns of September 15th, 1923 (p. 488). The response to the appeal, combined with a generous grant by the West Riding Medical Charitable Society, rendered his last year of life very much more comfortable and less anxious than could otherwise have been the case.

Professor Bertram Welton Sippy of Chicago, well known for his method of treatment of gastric and duodenal ulcers, died on August 15th of heart disease complicating diabetes, at the age of 58.

Dr. André Bergé, a well known Paris cardiologist, has recently died, at the age of 61.

The late Mr. W. B. Paterson.

Mr. W. A. Maggs, whose tribute to the late Mr. W. B. Paterson appeared in our issue of September 20th (p. 546), desires to make a correction of detail. The school at which Mr. W. B. Paterson, Sir Frederick Treves, and Sir Frederick Hewitt were all three educated was Merchant Taylors', not the City of London School.

Universities and Colleges.

UNIVERSITY OF LONDON.

King's College.

A special course of eight lectures on the histology of the nervous system will be given during the Michaelmas term (October-November, 1924) in the physiology lecture theatre of King's College (Strand, W.C.) by Dr. C. Da Fano, Reader in Histology in the University. The lectures will be accompanied by demonstrations of specimens, and will be held on Wednesdays at 4.30 p.m., beginning October 8th. The microscopical specimens will be exhibited one hour before the beginning of each lecture. The course is free to all students of London colleges and to medical men and others on presentation of their visiting cards. It has been recognized by the University of London as one of the special courses for the B.Sc. honours degree.

University College.

The following elections have been made in the Faculty of Medical Sciences at University College, London: Bucknill Scholarship, value 160 guineas, D. F. Ogborn; exhibitions of 55 guineas each, W. A. Wilson and H. Temkin; Epsom Medical Scholarship, R. W. Haines; additional scholarship, P. A. Cooper.

Medical News.

WE regret to have to record the death of Mr. W. H. A. Jacobson, consulting surgeon to Guy's Hospital, well known to many generations of surgeons for his *Operations of Surgery* and also as the editor of the later editions of Hilton's *Rest and Pain*. Mr. Jacobson's death occurred on September 14th at his house in Kent, to which he had retired some years ago.

EARLY this year we made a brief reference to the journal of the Kenya Medical Service, a modest periodical at that time issued to its subscribers in typewritten form. Since April it has appeared monthly as a printed publication under the title of the *Kenya Medical Journal*, circulating throughout Kenya Colony, Uganda, Tanganyika, and Zanzibar. Its function is the distribution of medical news of local or general interest and the discussion of problems appertaining to medical science. The editorial conduct of this enterprising journal continues in the hands of Dr. C. J. Wilson; the publishers are the East African Standard, Ltd., Nairobi. The yearly subscription is twenty-one shillings fifty cents, posted, in Kenya, or twenty-five shillings, posted, outside East Africa.

THE annual general meeting of the Society of Medical Officers of Health will be held at 1, Upper Montague Street, Russell Square, W.C.1, on Friday, October 17th, at 4.30 p.m., when the new president, Dr. R. A. Lyster, will give his address on idealism in public health. The annual dinner of the society will be held at the Hotel Cecil, Strand, on the same evening at 7.30. The Minister of Health hopes to attend, and others who have accepted include Sir Humphry Rolleston, P.R.C.P., Sir George Newman, Sir Arthur Robinson, and Dr. Haden Guest, M.P. A musical programme will follow the dinner. Ladies are invited, and members are asked to give early notice to the Executive Secretary, 1, Upper Montague Street, of their intention to be present, with the names of their guests. A payment of 12s. 6d. for each ticket should be included with applications sent before October 11th; after that date tickets will cost 15s.

A SERIES of post-graduate lectures on cancer will be delivered in the West Lecture Hall of the Royal Society of Medicine at 5.30 p.m., commencing on October 6th, when a lecture on the general pathology of cancer will be given by Dr. Archibald Leitch, and on October 8th Sir Thomas Horder will lecture on cancer from a medical point of view. These lectures are open to all members of the profession without fee. The second week of the course in psychological medicine at the Bethlem Royal Hospital begins on October 7th: lecture demonstrations will be given on Tuesdays and Saturdays, at 11 a.m., by Dr. Porter Phillips and Dr. Thomas Beaton. On the same day the first of eight clinical demonstrations on tropical medicine will be given at the London School of Hygiene and Tropical Medicine by Dr. G. C. Low and Dr. Manson-Bahr at 2 p.m.; the second demonstration will be given on Thursday at the same time. On October 8th the first of four lecture demonstrations on electro-therapy will be given at the Royal Free Hospital by Dr. C. B. Heald at 5.30 p.m. Full particulars and syllabuses of all these courses may be obtained from the Secretary of the Fellowship of Medicine, 1, Wimpole Street, W.1.

DR. JOHN JOHNSTON, of Bispham, Blackpool, has presented to the Bolton Reference Library his fine collection of the works of Walt Whitman, whose friend he was. Dr. Johnston is the joint author of *Visits to Walt Whitman*, and his collection includes first editions of all Walt Whitman's works (many of them containing the poet's autograph), also all the important biographies and critical articles about him and his poetry. Students and others will have access to the collection.

SIR HILARION MARCUS FERNANDO, M.D., has been appointed a member of the Executive Council of the island of Ceylon.

IN our issue of September 13th (p. 482) Mr. Wheatley, the Minister of Health, was referred to as a former convener of the Public Health Committee of Glasgow. We are now told that this is not strictly correct, and that Mr. Wheatley was convener of the Tuberculosis Committee, the convener of the Public Health Committee having been Mr. James Stewart, who is now Parliamentary Under-Secretary of Health for Scotland.

A RESEARCH into the harbouring of plague by wild rodents and the specific prophylaxis and therapy of the disease in man, is being undertaken by the South African Institute for Medical Research, Johannesburg. The work is to be carried out largely in a mobile laboratory on the veld. The present staff of the institute is to be augmented by a bacteriologist and an entomologist. The conditions of the appointments are briefly stated in our advertisement columns, but full information, including particulars as to the salaries, can be obtained from the Director of the Lister Institute, Chelsea Gardens, S.W.

AT a meeting of the London University supporters of the Labour party, held on September 25th, Dr. Frank George Bushnell, assistant medical officer of health for Plymouth, was adopted as the Labour candidate in the forthcoming parliamentary by-election caused by the death of Sir Sydney Russell-Wells. The other candidates contesting the seat are Sir John Rose Bradford, M.D., F.R.S., nominated by the Unionist Association; Professor A. F. Pollard, nominated by the Liberal Association; and Dr. E. Graham Little by the Graduates' Association as a non-political candidate. At the general election in 1923 the total poll was 8,050, the figures being: Sir Sydney Russell-Wells (Conservative) 4,037, Professor A. F. Pollard (Liberal) 2,593, Mr. H. G. Wells (Labour-Socialist) 1,420. Polling takes place from Monday, October 13th, till Friday, October 17th. The voting is by voting paper sent by the Vice-Chancellor to all graduates on the parliamentary register. The four candidates were duly nominated on October 1st.

TO commemorate the diamond jubilee of the Guild of St. Luke a celebration of the Holy Eucharist has been arranged for St. Luke's Day, October 18th, at 11 a.m., in All Saints' Church, Margaret Street, London, W.; the sermon will be preached by Bishop Gore. The annual service of the Guild will be held on Tuesday, October 21st, in St. Paul's Cathedral, at 7 p.m.; the preacher will be the Bishop of Truro. Tickets for this service may be obtained from the Rev. H. Kirkland-Whittaker, M.D., Chaplain's House, Banstead Downs, Sutton, Surrey, or Dr. Dorothea Brooks, 65, Park Road, Battersea, S.W.11. The annual corporate Communion will be celebrated at St. Andrew's Church, Wells Street, W.1, at 7.45 a.m., on Wednesday, October 22nd, and on the same day the annual general Chapter will be held at 24, Harrington Gardens, S.W., near Gloucester Road Station, at 5 p.m.; tea and coffee being served at 4.30.

THE second session of the Liverpool Psychological Society will commence on October 7th, when the President, Dr. Betts Taplin, will deliver his inaugural address, on "The Power of Suggestion," at the University, at 8 p.m. The society's first session has been very successful, and an interesting programme of scientific research has been arranged for the coming winter. Further particulars may be obtained from the Secretary, the University, Liverpool.

A SPANISH Congress of Medical Science will be held at Seville from October 15th to 20th, under the presidency of Professor Recasens of Madrid.

PARTICULARS for a revised edition of the *Epsom College Register* are now being collected. Those who have received forms are asked to fill them in and return them to the sub-editors at once. Any old Epsomian who has not received a form should send his address to Mr. H. F. Lee, 7, The Avenue, Beckenham, without delay.

THE annual meeting of the State Children's Association will take place, on the invitation of Major Astor, M.P., and Lady Violet Astor, at 18, Carlton House Terrace, on Friday, October 10th. The chair will be taken by Lord Stanmore at 3 p.m. Various matters relating to children supported by the State will be discussed.

LORD CHEYLESMORE writes to commend the Lord Roberts Memorial Fund for Workshops for Disabled Soldiers and Sailors. This Fund, which is an offshoot of the Soldiers and Sailors Help Society, has existed for many years, and is devoted to helping all soldiers and sailors, and not only those incapacitated in the last war. Workshops were started after the South African war, and were considerably enlarged as a memorial to Lord Roberts to accommodate cripples of the more recent war; in them craftsmanship is taught and a market found for the work of disabled men. Since an injured man cannot compete with the uninjured, being unable to work sufficiently long, the memorial fund not only trains him and gives him work, but also makes up the difference in money between the man's endeavour and his output. Cheques may be sent to Lord Cheylesmore at the offices of the Fund, 122, Brompton Road, S.W.3; they should be drawn in favour of the honorary treasurer of Lord Roberts Workshops Fund and crossed "Lloyds Bank, Ltd."

THE one hundred and fifty-ninth annual session of the Pennsylvania University Medical School, the oldest medical school in the United States, opened on September 26th. The school was founded by Dr. John Morgan, who held the first medical professorship created in the colonies, and 14,911 graduates have been registered.

THE annual Belgian Congress of "Professional Medicine" was held at Ostend on September 6th and 7th, on the occasion of the sixtieth anniversary of the Belgian Medical Federation. Papers were read by Dr. Wickersheimer of Strasbourg on the evolution of the medical profession in Belgium, by Drs. Decorte and Penninelex on railway medicine, and by Dr. Koettlitz on medical practitioners and club practice.

Letters, Notes, and Answers.

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.* Authors desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Financial Secretary and Business Manager, 429, Strand, W.C.2, on receipt of proof.

ALL communications with reference to advertisements as well as orders for copies of the JOURNAL should be addressed to the Financial Secretary and Business Manager, 429, Strand, London, W.C.2. Attention to this request will avoid delay. Communications with reference to editorial business should be addressed to the Editor, BRITISH MEDICAL JOURNAL, 429, Strand, W.C.2.

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—not necessarily for publication.

Communications intended for the current issue should be posted so as to arrive by the first post on Monday or at latest be received not later than Tuesday morning.

THE telephone number of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is Gerrard 2630 (Internal Exchange). The telegraphic addresses are:

EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology Westrand, London.*

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westrand, London.*

MEDICAL SECRETARY, *Medisecra Westrand, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin;* telephone: 4737, Dublin), and of the Scottish Office, 6, Rutland Square, Edinburgh (telegrams: *Associate, Edinburgh;* telephone: 4361, Central).

QUERIES AND ANSWERS.

INCOME TAX.

Partnership Capital.

"S. L." entered into partnership with two other medical practitioners, paying a premium of £460; he has now withdrawn from the firm, retaining the branch which he started, and received £144 in twelve monthly instalments in settlement from his former partners. He asks whether these instalments are taxable.

*** It appears to us that the £144 is a capital receipt, as the £460 was a capital payment, and as such is not liable to income tax.

Fees for Part-time Work.

"W. L. C." inquires whether fees received for part-time work for the Ministry of Pensions can properly be averaged in with general practice earnings for Schedule D assessment. The local inspector of taxes claims to assess the fees separately under Schedule D.

*** The question of separate assessment of fees chargeable under Schedule E (for example, hospital retainer fees) was a frequent source of trouble in pre-war years, but it was understood that the Board of Inland Revenue had definitely accepted the suggestion that they might reasonably be included in the Schedule D assessment. The fees referred to by "W. L. C." are relatively a good deal larger in amount, but, on the other hand, are more closely allied to general practice earnings, inasmuch as they are paid on what is approximately a *quantum meruit* and not on a salary basis, and we know of no reason why the ordinary procedure should not be followed in assessing them. The matter, unfortunately, is one of administration rather than of law, and we suggest that "W. L. C." might give formal notice of appeal to the inspector against the assessment, but should, before taking subsequent steps to test the technical merits of the assessment, place the whole of the facts before the Board of Inland Revenue—addressing his letter to the Secretary, Somerset House, W.C.2—and await its decision.

Anticipatory Deduction.

"J. E. H. S." states that on a recent claim to repayment in respect of the year 1923-24 the inspector of taxes proposes to make a deduction for tax which will be payable by him for 1924-25 under Schedule A.

*** The proposition should be resisted. It is, no doubt, convenient to set off from an amount repayable to a taxpayer any sums then due from him, but it is quite unreasonable, and not justifiable in law, to set off tax which has not become legally due to the Revenue.

LETTERS, NOTES, ETC.

A MEMORIAL WINDOW.

DR. J. FLETCHER HORNE (The Poplars, Barnsley) writes: To complete a sketch of a painted window to the memory of a physician I am desirous of finding a suitable subject for the central light of a three-light window. The figure should be standing and looking to the right in order to be in agreement with an adjoining window. St. Luke has been proposed as most suitable, but I have been unable to find a satisfactory print. Possibly some reader of the JOURNAL may be kind enough to refer me to a fitting subject for the purpose.

THREADWORMS.

DR. RACHEL GETHEN (Stanford-le-Hope, Essex) writes in reply to "J. E. W." (August 30th, p. 391): In January, 1923, an adult, aged 44 years, was treated by me for recurrent attacks of threadworms. She had suffered in this way for ten or fifteen years, and everything known had been tried. Remembering the good effect of thymol in ankylostoma duodenale, I prescribed two successive nightly doses of 30 gr. each in an alcoholic solution, observing the usual dietetic restrictions and purgatives, hoping the anthelmintic effect would be as good in the appendix as in the duodenum. The result was everything to be desired at the time. No further treatment was requisite, and I heard from her to-day: "There has been no recurrence whatever since, thanks to your treatment."

TREATMENT OF ALOPECIA.

DR. CLYDE MCKENZIE (Smethwick) writes, in reply to "Medico's" request (September 27th, p. 603) for suggestions in treating a severe case of alopecia areata: I have obtained successful results with ultra-violet light, using quartz applicators and an atmospheric quartz mercury vapour lamp as supplied by Kelvin, Bottomley and Baird. A few applications, beginning with three-minute radiations, are usually successful.

"A. H. M. D." writes: In answer to "Medico," I have had great success by giving parathyroid tablets 1/20 grain daily. Further, a personal experience is this: I have been taking arsenic since February for pernicious anaemia; my long-standing bald patch has now a fair growth of hair.

HERPES AND VARICELLA.

DR. R. LESLIE DAGGER (Morpeth) writes: I was interested in Dr. Frederick MacSorley's note (September 27th, p. 604) pointing out the relationship between herpes zoster and varicella, and would like to mention two recent cases which came under my care and which presented the converse of the case he quoted. Two adults of different families, each having a child, contracted herpes zoster. At the time I was treating them I warned each party that, in all probability, their child would develop chicken-pox in about a fortnight. In each case, much to the amazement and wonder of their respective parents, the child did so. Are we justified, nevertheless, in all cases of herpes and varicella to prognosticate the development of varicella, on the one hand, and of herpes on the other, in some of the more immediate "contacts" with these cases?

THE CONTINENTAL HORSE TRAFFIC.

THE majority of the horses exported from this country to the Continent are intended for almost immediate slaughter for food; a paper by Mr. R. G. Linton, of the department of hygiene of the Edinburgh Veterinary College, gives some particulars of general interest about the trade. Prior to 1914 regulations were very slack. From then until 1921 the Ministry of Agriculture demanded a certificate that the animals were fit for work. In the spring of 1921, however, the whole regulations were revised, a high standard of fitness was demanded, and these conditions were stringently observed. There is now no traffic in decrepit or worn-out horses. The standard demanded for those animals shipped abroad is higher than that required for the horses still at work on the streets of this country. Since 1921 horses unfit for work have been slaughtered in this country, and the trade in horse carcasses has steadily increased. Most of them go to Belgium, France, and Holland; and while the numbers of horses and carcasses respectively exported to these countries in 1920 were 58,000 and 15,900, these figures are now almost reversed. All carcasses are inspected by a veterinary inspector either before shipping or after arrival—in some cases on both occasions, depending on the regulations of the importing country. The horse carcass trade is now as much under control as those dealing with any other form of animal food, and a very high standard of cleanliness is, as a rule, observed. Mr. Linton, after stating that some very fine animals are sent over for slaughter, observes—"rather a pity when one considers that many miserable animals that have long since earned their rest are allowed to work on our streets by those societies that seem to have taken over the responsibility of the administration of the Protection of Animals Acts." The details given show that there is now no grounds for complaint of cruelty or mismanagement. Mr. Linton maintains that any alteration of the present system by which only horses certified by the veterinary inspector as "fit to work" are exported would be inadvisable.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 38, 39, 42, and 43 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 40 and 41.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page *132*.